BUILDING

D & R

PRODUCTS

CATALOGUE NO. 561

Manufacturers since 1910

DRUMMOND & REEVES LIMITED

355 Dufferin Street, Toronto 3, Ontario

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Contents

1910 - 1956

For nearly half a century this Company has been manufacturing and distributing building specialties and serving the Canadian Construction Industry throughout Canada.

During this period many new products and ideas introduced by D & R have come into general use, and each year sees additional items added to the list of D & R Products. We hope you will find in this latest catalog some ideas that will prove of service to you.

With the most modern plant equipment, including a battery of 10 presses, the latest type of welding equipment and wire working machines, the great bulk of D & R Products are produced from the raw materials in our own shop. We are therefore in a position to render prompt service not only on standard catalogued items, but also on special products that are frequently needed.

D & R Products are distributed by leading Building Supply, Lumber and Equipment dealers throughout the country and they are anxious to serve you at all times. Our services also are always available on special problems.

DRUMMOND & REEVES LIMITED

General Offices and Plant

355 DUFFERIN ST. — TORONTO 3

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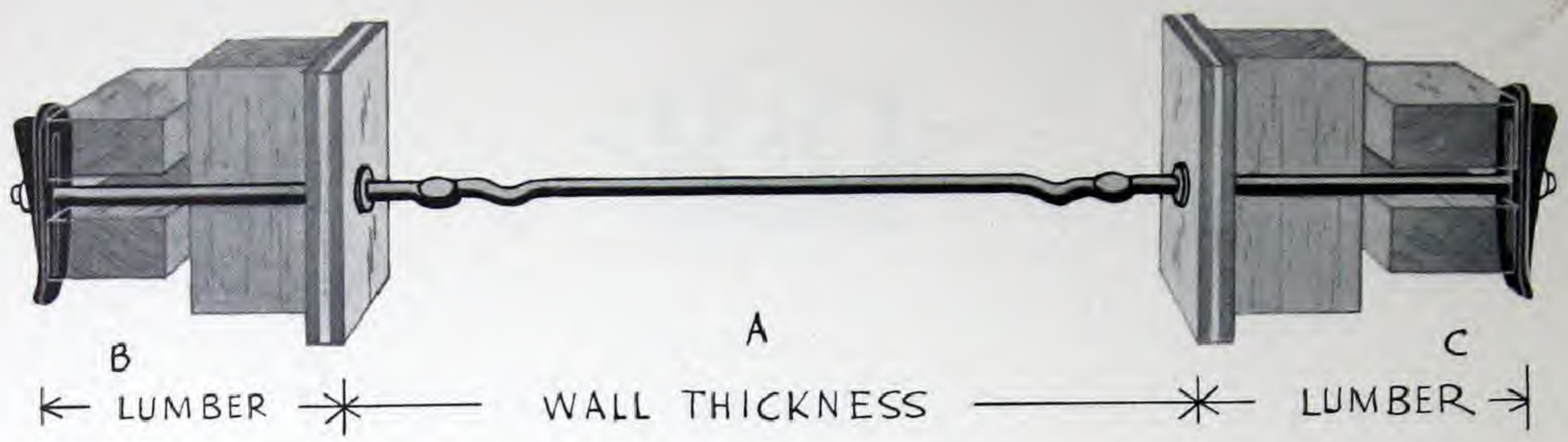
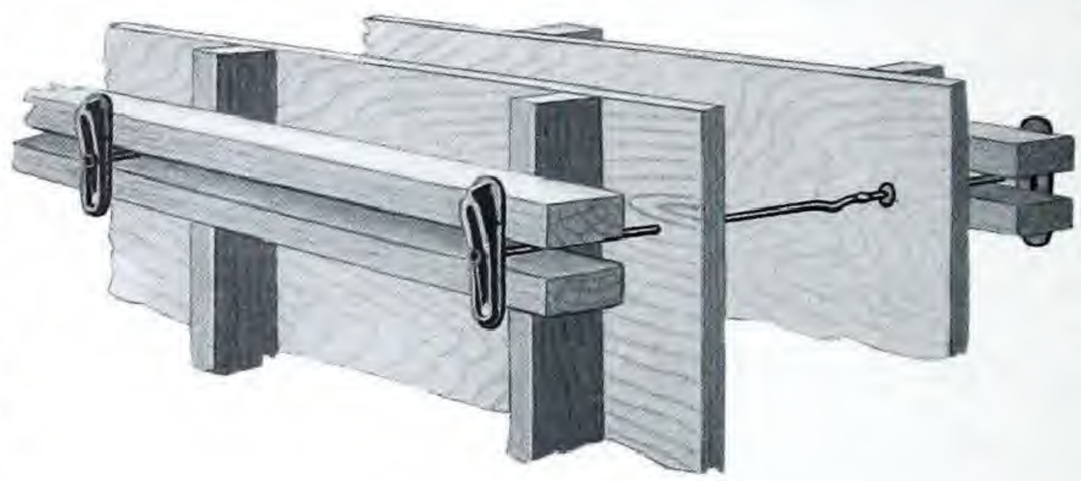
Snap-Bak Form Ties



D & R Snap-Bak Ties have an ultimate capacity of over 5,000 pounds and are designed for a working load of 3,000 pounds. Wales are usually spaced approximately 30″ to 32″ apart vertically and the ties from 30″ to 36″ apart along the wales. Thus one tie is required for every 6 to 8 square feet of wall, depending upon the spacing of ties and the rate of pour.

Washers attached to the wire accurately space the forms and eliminate the necessity of wood spreaders.



The crimps in the wire prevent the tie from turning in the wall when being stripped, and preserve the bond between the wire and concrete. This seal is important where dampness is likely to be encountered. The slight crimps will not straighten out under full recommended working load.

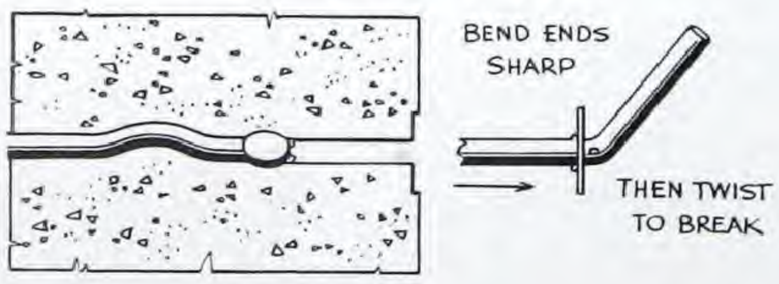
The Break-Back. When stripping, the ties automatically break one inch back from the face of the wall.

Application

In built-up forms, the ties are placed between the boards as the form is erected; or in panel forms they are preferably placed between the panels. A panel corresponding with either the vertical or horizontal spacing of the ties is recommended. In erecting forms, the wedge is slipped over the button end of the tie and driven down to draw the boards or panels against the spreader washers and lock the forms in place.

The Snap-Bak Tie is made of special carbon, 165-180,000 pounds high tensile steel wire for either straight or battered forms. It is also used with double vertical studs in the erection of circular forms, such as reservoirs, tanks, silos, etc., as detailed on page 18.

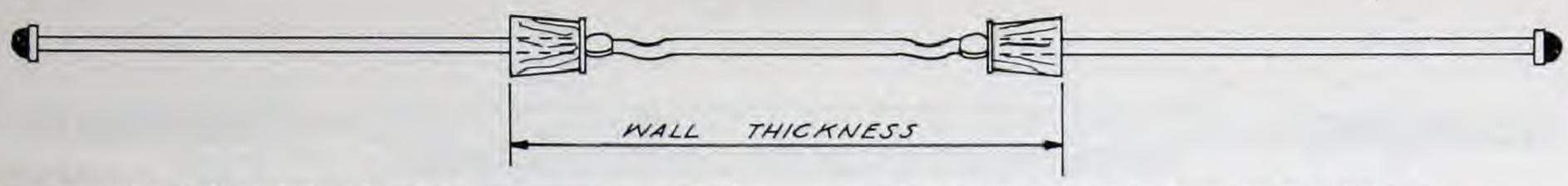
Stripping and Removal



To release forms, simply tap up the wedges and remove. The ties may then be cut back of the wales with bolt cutters, or left until forms are stripped.

After removing forms the tie ends are bent at right angle to the wall and rotated to break the wire back from the face of concrete. The small hole resulting is readily grouted.

Snap-Bak Wood Cone Ties



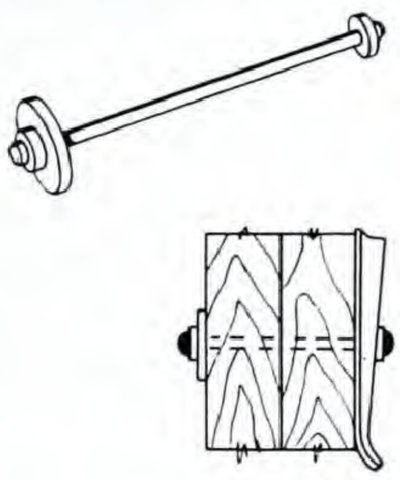
Where a positive break-back of 1″ or more is called for, we recommend the use of one of our form clamps described on pages 5 to 8, or Snap-Bak wood cone ties. Ordinary snap ties leave such a small hole (less than ¼″) that it cannot be completely filled and eventually results in water seepage and staining.

Wood cone ties are available with 1″ (standard), 1½″ or 2″ break back. The ties are broken back in the usual manner by twisting and the cones removed and holes plugged at any convenient time.

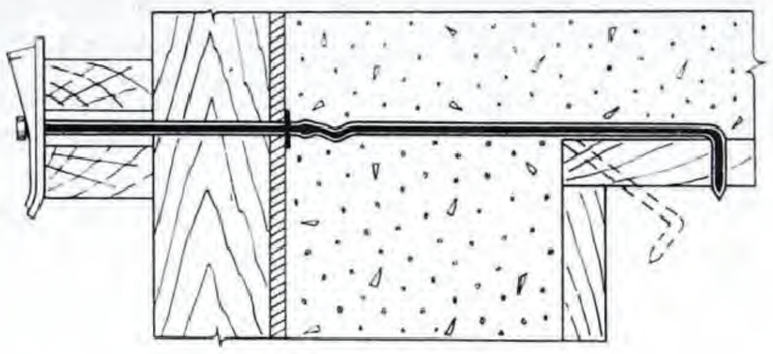
The Snap-Bak Wedge is used to draw forms into line and clamp the tie. It has one-half inch adjustment, which takes care of variations in size of form lumber. This wedge is not stamped metal, but a solid malleable iron casting of highest quality, with the requisite strength and ruggedness to give years of service at a minimum of cost.

Snap-Bak Panel Lock Tie

A short snap tie with hardened, fixed washers at each end and a large loose washer for bearing. Used with a Snap-Bak wedge to lock two panels together.



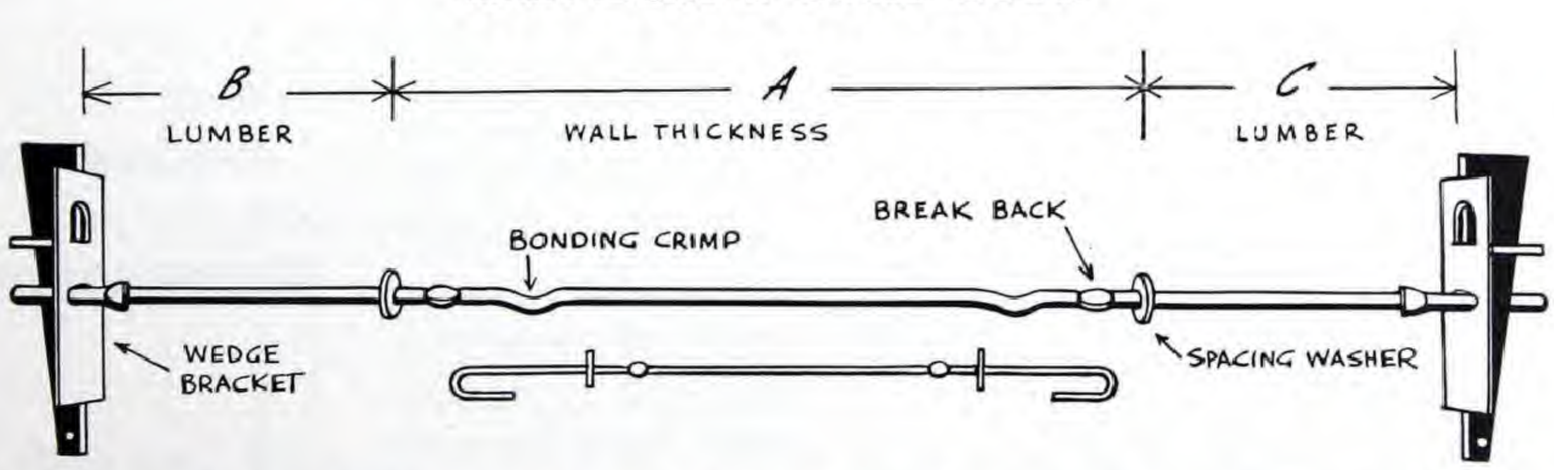
Snap-Bak Spandrel Ties



IMPORTANT INFORMATION REQUIRED

When ordering Snap-Bak or Kut-Bak ties, please furnish the EXACT measurements A, B and C. The lumber measurements should be the actual, fractional sizes – NOT the nominal size of lumber. DO NOT give us the overall length of tie, as we always allow for the wedge.

Kut-Bak Form Ties



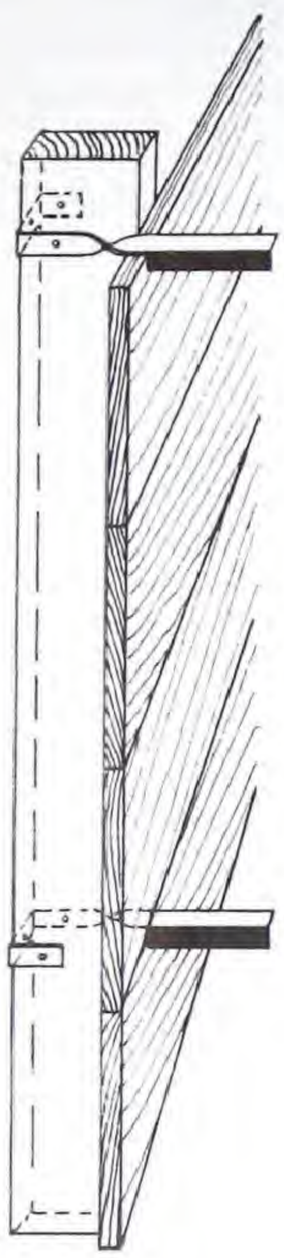
The Kut-Bak Tie is made from the same wire and is used in exactly the same manner as the Snap Tie, but has loop ends instead of buttons and employs a somewhat lower cost all-steel wedge.

Kut-Baks (or K-K's as they are commonly called) have been used in millions by leading contractors throughout the country and on thousands of small jobs with unfailing satisfaction. At times we can give better service on this particular tie and it costs a little less than the Snap Tie, but will not take quite the same load.

RECOMMENDED WORKING LOAD 2,500 LBS.

Security Ty-Spreader

(PATENTED)



The Security Ty-Spreader maintains and increases its popularity from year to year. Many new types of ties have been introduced but each year sees more and more Ty-Spreaders being used. The reason is clearly its reliability and simplicity in use. It is a one-piece tie that requires no clamps, wedges, wrenches or other tools except a carpenter's hammer and some nails.

Design. Ty-Spreaders are made from 1¼" x 16 gauge steel. The body of the tie is formed into an angle which spaces the form, while the ends lie flat between the boards and are twisted to bend readily around the studs for nailing. The standard tie has 7½" ends – suitable for 2 x 4 studs. Special ends can be furnished for use with 2 x 6 or 4 x 4 studs, or for use with wales.

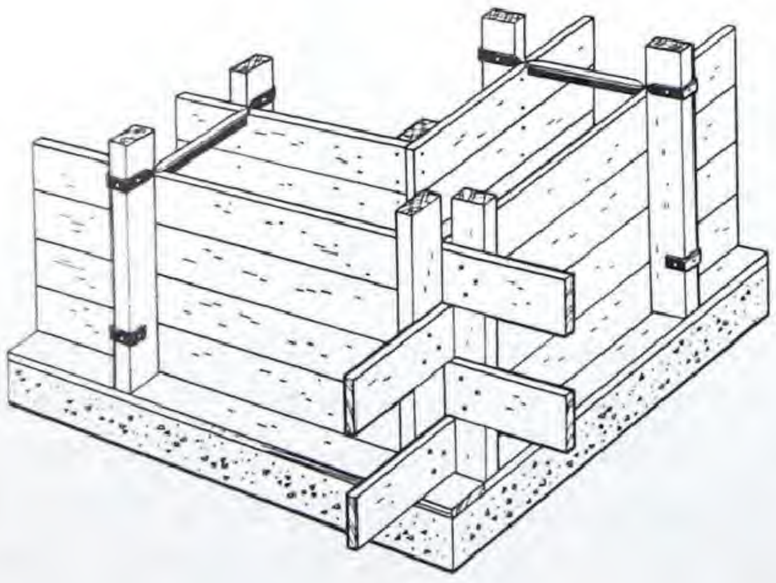
Spacing of Ties. The Security Ty-Spreader takes a load in excess of 1800 pounds. They are recommended for working loads not exceeding 1200 pounds, and should be spaced not over 24" apart vertically, with studs on 18" to 24" centres, depending upon the method and rate of pour.

Stripping. After forms are removed, twist off the ends of the spreaders with a claw hammer – they will break slightly back from the face of concrete – or clip flush with metal shears.

Advantages in Using Ty-Spreaders

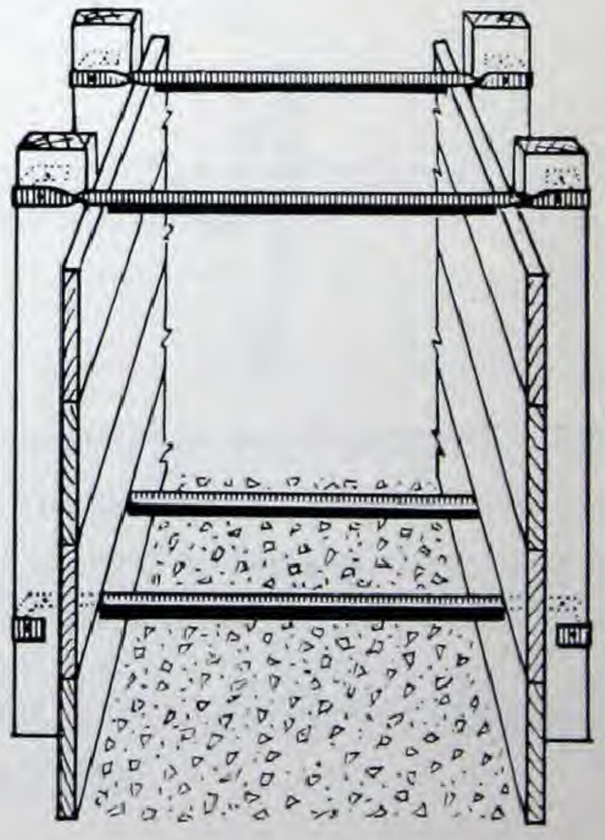
- Die stamped for accuracy.
- Uniform wall thickness.
- Lie flat between boards.
- No holes to bore.
- Save leakage of concrete.
- Uniform and known strength.
- Quickly erected and stripped.
- No wood spreaders required.

YOU REQUIRE NO CLAMPS IN USING SECURITY TY-SPREADERS.
THE ONLY TOOL REQUIRED IS A CARPENTER'S HAMMER.

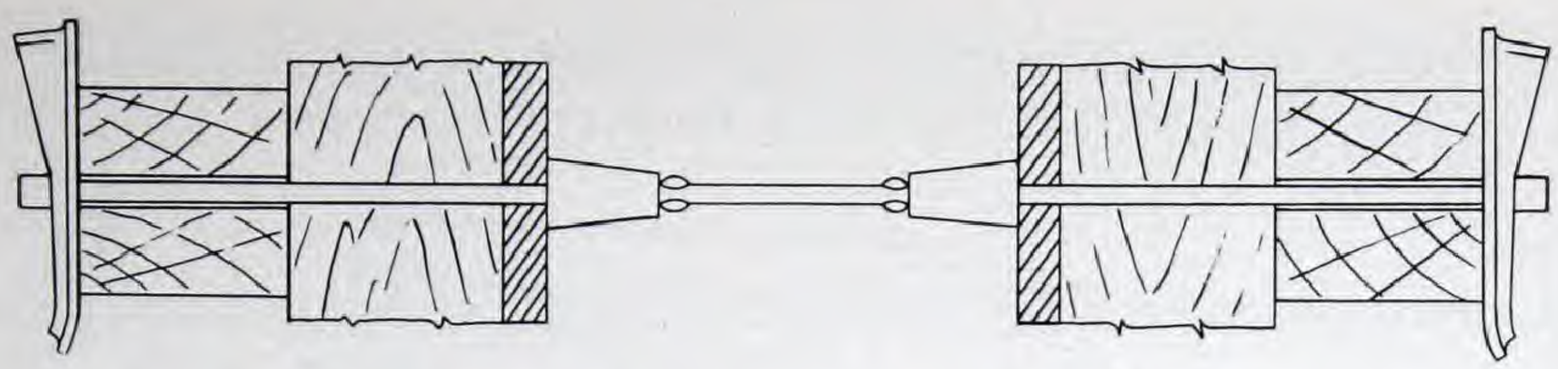


Suggested method of forming corner.

Application. In using Security Ty-Spreaders, simply place the tie between the boards as the form is erected, then bend the ends around the studs and nail securely, as illustrated. Always place ties on alternate sides of the studs, as shown, to prevent twisting of the studs.

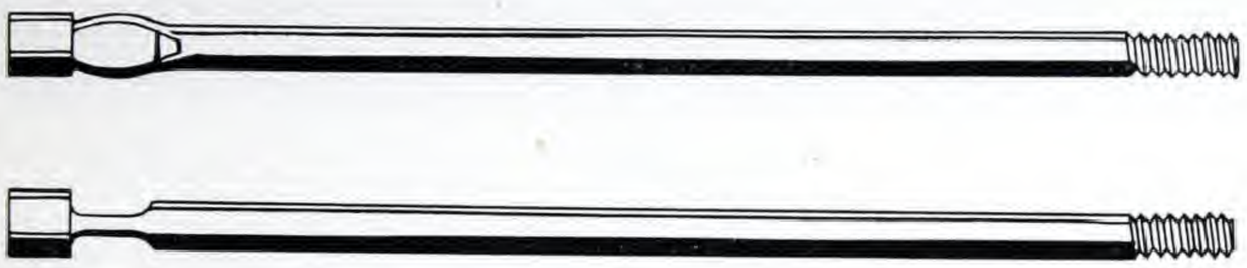


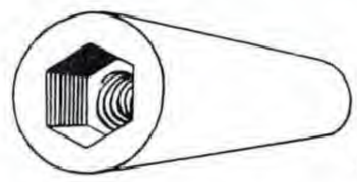
Snap-Bak Cone Nut Clamp



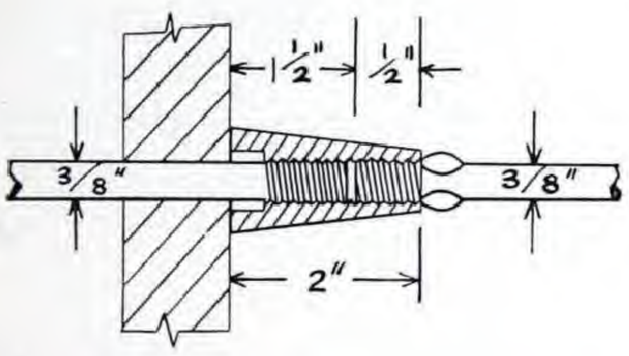
The new Snap-Bak Cone Nut Clamp has been readily accepted by contractors, engineers and Government departments, as it provides a very positive and reliable set-back of one inch, an accurate wall spacing and a means of obtaining an unblemished wall surface.

Removable Cones. The cone portion of this clamp is not fixed, but is removable. This means that the purchase of extra cones doubles the number of clamps available, as the waler rods may be removed soon after pouring and are ready to be re-used before the preceding forms can be stripped. In removing waler rods the clamping wedge is used as a wrench, without disturbing forms.





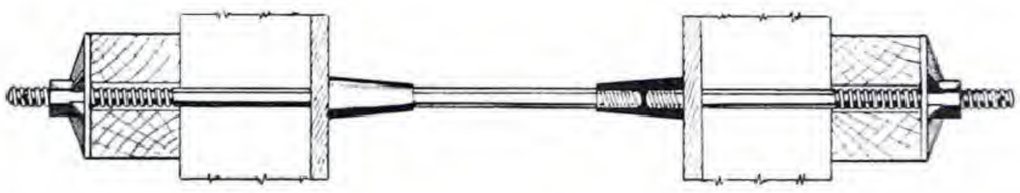
Design. The clamp consists of 2 outside or waler rods and 2 cone nuts. It is adjusted to wall thickness and locked by means of the regular snap-bak wedge,



with which most contractors are already equipped. The waler rods are full ⅜" diameter and it takes an inside tie rod of ⅜" diameter also, with a load capacity of over 5,000 lbs., using high tensile steel.

Application. The removable cone also simplifies and expedites the erection of forms. Cone nuts are assembled with an inside tie rod on the bench. The first side of the form is then set in place and the waler rod threaded into the cone. Now the other side of form is placed in position and the second waler rod is passed through, to connect with the other cone. No need to guide heavy forms on to a waler rod – simply guide the waler rod through the form.

Removal of Cones. After forms are stripped, the cone is easily removed with the wrench illustrated. No broken waler rods and no chipping of concrete.



Threaded Inside Rods

Order tie rods 3 inches shorter than wall thickness. The lugs serve as a gauge to ensure proper wall size.

In ½" and ⅝" sizes, threaded waler rods are used, with plate nuts as a clamping device.

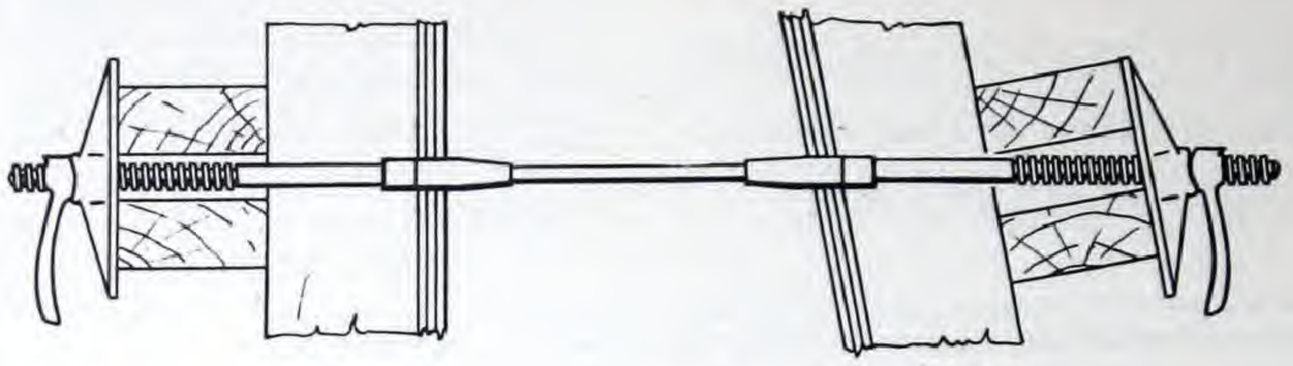
Waler rods have quick adjustment threads of sufficient length for either 4" or 6" studs or panels and wales.

The application is the same as above described. Waler rods are removed by backing the plate nut against a nail dropped through the hole near the end of the rod. This acts as a wrench.

D & R Standard Form Clamp

(PATENTED)

THE CHOICE OF LEADING CONTRACTORS IN ALL SECTIONS OF CANADA FOR OVER TWENTY-FIVE YEARS



Design of Clamp

One clamp assembly consists of:

2 Outside or "Waler" Rods
2 Malleable Iron Brackets
2 Malleable Iron Wing Nuts

Over one million "D & R" Standard Form Clamps have been sold and rented to Canadian contractors during the past twenty-five years, for use on nearly every type of concrete structure and in every Province from Newfoundland to British Columbia. "D & R" was the first all-Canadian clamp and the first to adopt the quick-adjustment, square cut thread that adds so much to its speed of adjustment and to its ability to "stand up" year after year under all job conditions. The design of the "D & R" Clamp was sound twenty-five years ago and no better general purpose clamp has since been introduced.

Waler Rods are of special alloy steel – tough and rugged to withstand rough handling. The square cut threads are of sufficient length for any combination of either 4″ or 6″ studs and wales. Special lengths can be furnished upon short notice.

Brackets and Wing Nuts are of certified malleable iron, and designed for use on either straight or battered wall forms.

Application

1 – Assemble 2 waler rods and an inside tie rod, with bracket and wing nut in approximate position on one end.

2 – Pass this assembly through the form from one side and attach the second bracket and wing nut on the other side of form.

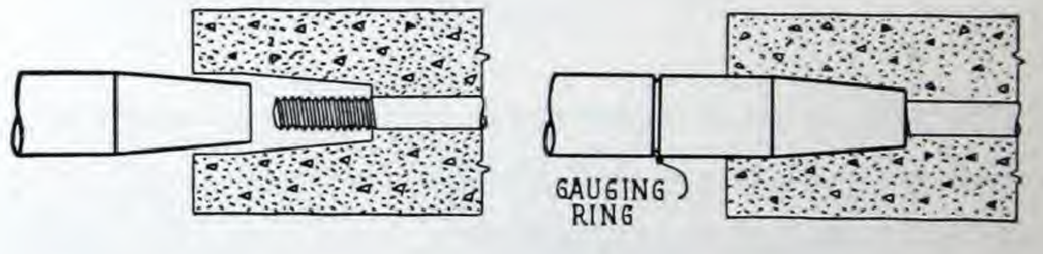
3 – Tighten up both sides to required wall size. The gauging ring indicates the outside of the sheathing to ensure the inner tie rod being spaced an equal distance from each face of the form.

Plate Nuts

On straight walls Plate Nuts are sometimes substituted for Brackets and Wing Nuts. They provide the same speed and fineness of adjustment, with one less piece to handle. Plate Nuts are illustrated on page 8.

Removal

Clamps are removed without stripping forms by backing the waler rod off the inside tie rod. The wing nut acts as a wrench when turned against a nail dropped through the hole provided near the outer end of the waler rod.

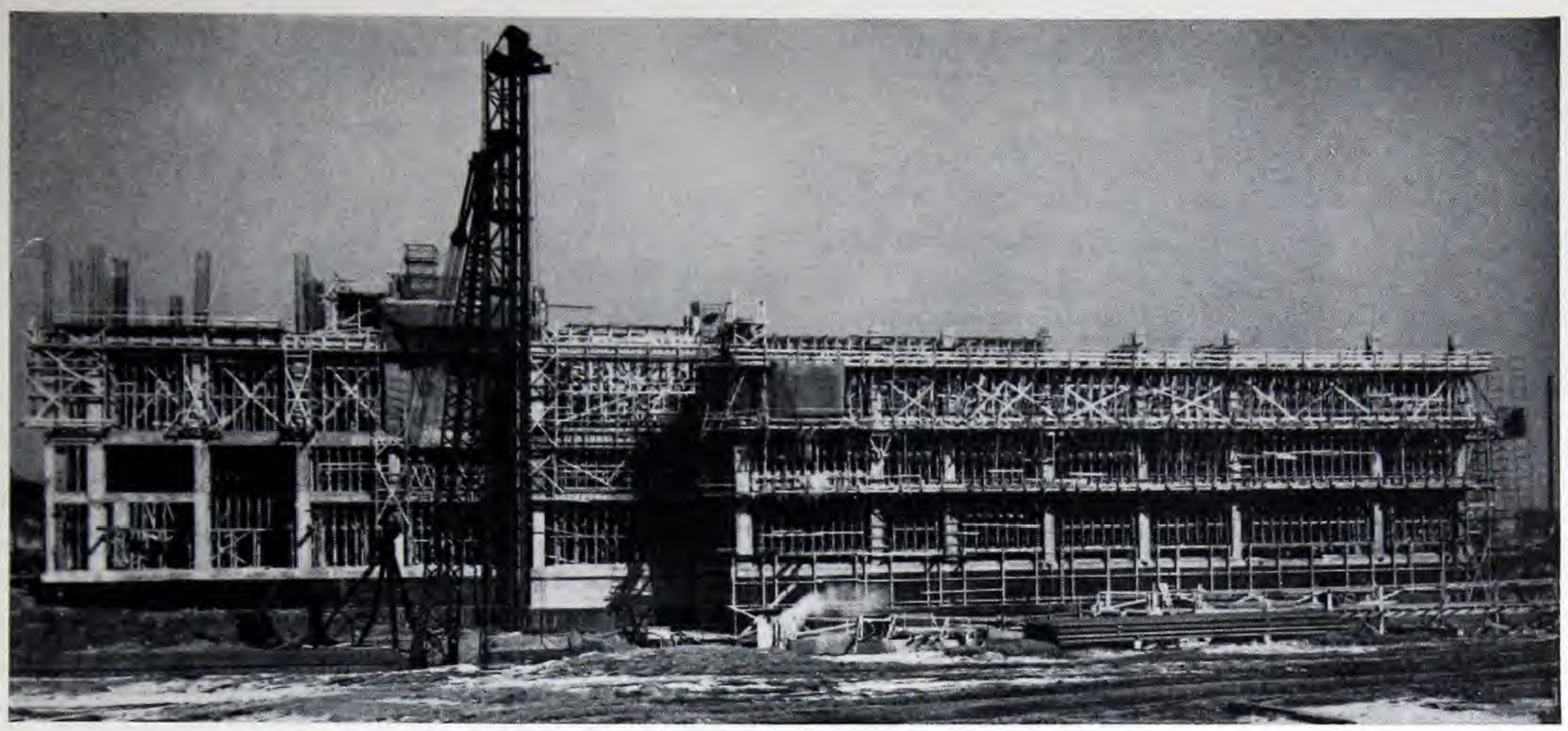


Note how removal of clamp leaves only a small hole in the face of wall, which is readily plugged and the cement grout anchored by the exposed thread of the inner tie rod.

RENTAL OR PURCHASE

"D & R" Standard Form Clamps, as well as the Economy and Cone Nut Clamps, may be purchased outright or rented on a monthly basis, with 60 days option of purchase. Full rentals paid up to two months will be allowed against the purchase price.

D&R On Outstanding Projects D&R



This hydro-electric steam generating plant is typical of the many important projects across Canada for which D & R forming equipment and concrete accessories were chosen.

DIMENSIONS AND PROPERTIES OF STANDARD CLAMP

Clamp Assembly Number	Diameter Inside Tie-Rod	Overall Length	Diameter of Rod	Diameter of Coupling	Recommended Working Load	Weight per Complete Clamp
120	3/8"	18"	1/2"	3/4"	4,200 lb.	4½ lb.
130	1/2"	18"	1/2"	3/4"	7,500 lb.	4½ lb.
230	1/2"	18"	5/8"	15/16"	7,500 lb.	6 lb.
240	5/8"	18"	5/8"	15/16"	11,000 lb.	6 lb.

Working loads in above table based on the use of mild steel tie rod.
If high tensile rod is used, loads may be increased approximately 25%.

Threaded Tie Rods

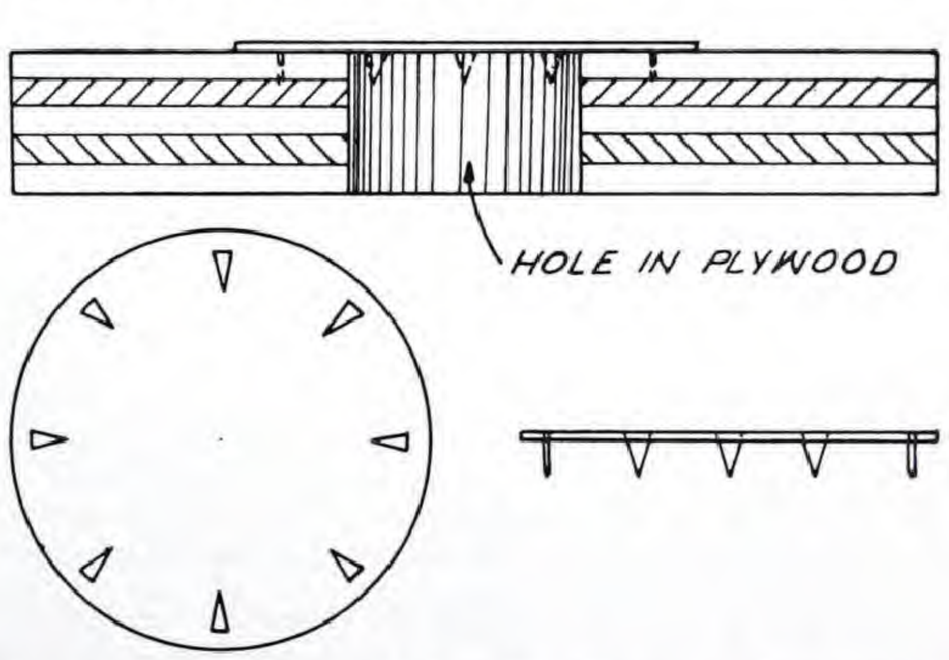
Rolled Thread rods in 3/8", 1/2" and 5/8" diameter and in lengths from 4" up to 30" are carried in stock.

Cut Thread rods in 3/8", 1/2" and 5/8" diameter made up and furnished promptly.

Metal Form Spacers

Used by many Contractors for spacing wall forms tied by wire or band iron. More accurate and cheaper than wood spreaders and do not require removal.

Plywood Patches



An inexpensive metal disc 2¼" diameter for covering holes in form lumber. Place a flat board over the disc – apply a hammer blow – and the patch is secure.

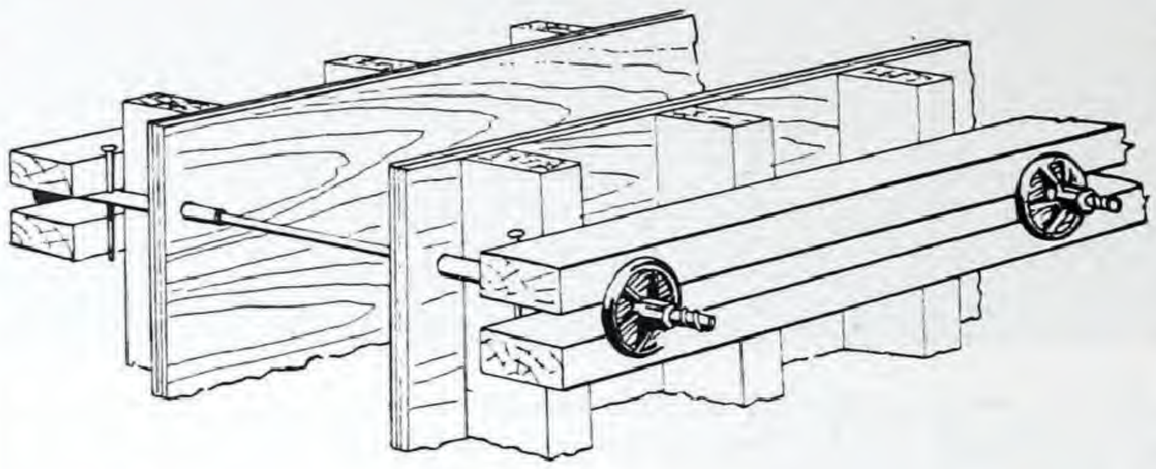
Economy Form Clamp

The No. 420 "Economy" Clamp is similar in general design and application to the widely used D & R "Standard" Clamp, but is made in one size only to take a ⅜" inside rod.

It is a general purpose clamp that is preferred by many contractors for its external spacing feature.

Design of Clamp. One clamp assembly consists of: 2 outside or "waler" rods; 2 malleable iron plate nuts.

The waler rods are made of special alloy steel, 17" in length, suitable for either 2 x 4 or 2 x 6 studs and wales. They have 7" of quick adjustment Acme thread.



Application. Assemble two waler rods and an inside tie rod of required length, with a plate nut on one end in approximate position. Pass this assembly through the form from one side and drop a 4" common nail through the hole in the rod back of the wale. Then tighten up the plate nut and repeat this operation on the other side of the form.

Removal. Clamps are removed from the forms *before stripping* by backing the waler rod off the inside tie rod. The waler rod is flattened to nut size at the outer end, and the same lever used in tightening the plate nut is used for removing the rod.

External Spacing. The external spacing feature of the Economy Clamp will be found an important advantage, particularly in thin walls where the removal of internal spacers is always a problem. Clamp rods are furnished with cross drilled holes (suitably spaced for either 4" or 6" studs) through which a 4" nail is dropped back of the wale. Thus with an inside tie rod 2" less than wall thickness and threaded 1" into the clamp on both sides, accurate spacing of the wall is provided.

Wing Nuts and Brackets. On battered walls Wing Nuts and Brackets are substituted for Plate Nuts, to avoid the necessity of wood wedges.

TIGHTENING AND REMOVAL WRENCH

PLATE NUT FOR LOCKING CLAMP

Hexagon Couplings

Used in the same manner as Cone Nuts, but not removable and without the form spacing features.

Also used as a rod coupling for continuous reinforcement or long tie bolts and as an anchor in mass concrete construction.

Made from cold rolled steel bars, in ⅜", ½", ⅝", ¾", ⅞", 1" and 1⅛" sizes.

Steel Cone Nuts

Cone Nuts provide a most accurate means of spacing concrete forms and keeping inside tie rods back from the face of concrete.

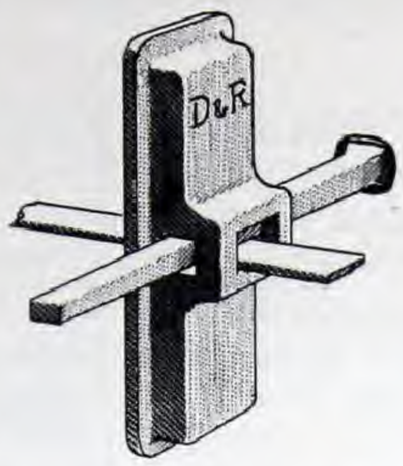
Used with "D & R" Cone Nut Clamp, with plain rods and Set Screw Clamps, or with threaded rods, nuts and washers.

Turned from cold rolled steel, and made in ⅜", ½", ⅝" and ¾" sizes.

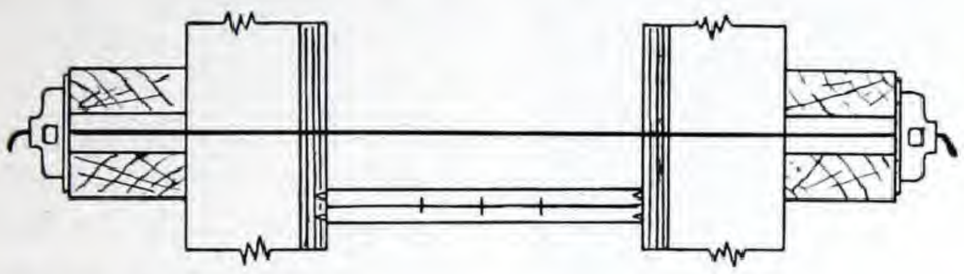
Band and Set-Screw Clamps

Band Iron Clamp

The Band Clamp is a malleable casting used with a special grade of band iron for tying wall and spandrel forms, hanging beam forms and clamping columns where our standard column clamp is not applicable.



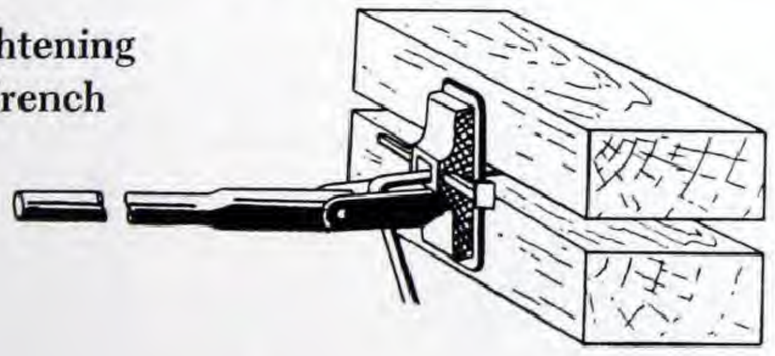
The band iron passes through a slot in the clamp casting and is tightened by means of the band iron wrench illustrated. The band is locked with a 30 penny (4½") steel cut nail. When thus locked the band clamp will hold without slipping past the breaking point of the band iron which is over 3,000 lb.



Application

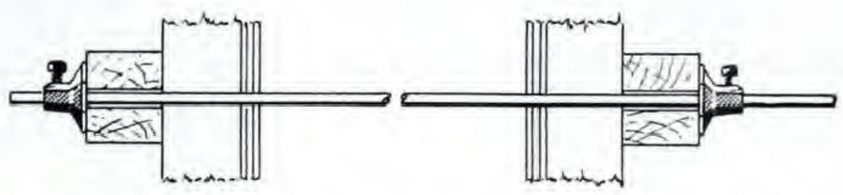
In using Band Clamps, first cut the band iron to required lengths and attach a clamp to one end at the bench. The band is then laid between the boards or panels as the form is built, a second clamp attached on the other side, and the form drawn up against spreaders by means of the tightening wrench. Double wales are recommended. As the band lies flat between the boards, no boring of holes is required. After the forms are stripped the projecting end of the band iron is twisted off with a claw hammer.

Tightening Wrench



Universal Clamp

The Universal Set-Screw Clamp is known by contractors everywhere and has many uses around a construction job.



The Clamp is a single piece casting, provided with set-screw and cored with an oval hole, with shoulders against which the rod is depressed. These shoulders take the load and prevent the rod from slipping. The set screw merely holds the rod in the depression.

Application

One clamp is attached and tightened on a plain rod of required length and passed through the form. The second clamp is then slipped over the rod from the other side. Forms are then drawn up to required size against wood or metal spacers by means of the Tightening Wrench and the second set screw tightened.

Made in following sizes:

No. 1 – ¼" No. 2 – ⅜" No. 3 – ½"
No. 4 – ⅝" and No. 5 – ¾"

Rod Tighteners and Rod Pullers available in above sizes.

"D & R" Special Band Iron

A special grade of band iron, ½" x 14 gauge, with an extra carbon content which adds considerably to the tensile strength, is recommended for use with the band clamp. This band compares with ordinary commercial quality as follows:

"D & R" Band Iron – breaking point, 3,060 lb.
Commercial grade – breaking point, 2,060 lb.

Band Clamps were used in these tests and held without slipping. The recommended working load is 1,500 lb.

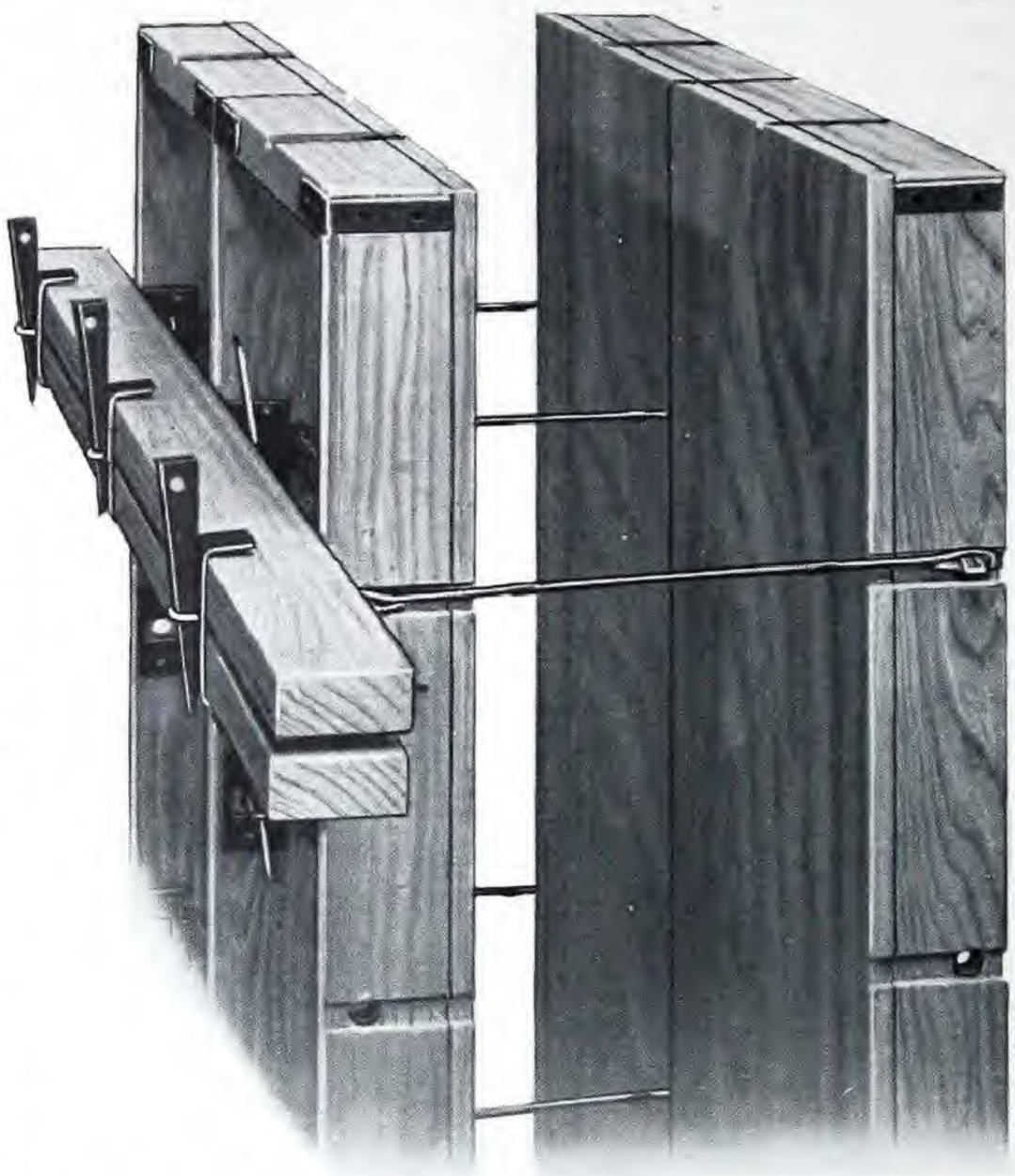
Band Iron is furnished in coils of approximately 35 lb. each. It weighs 145 lb. per 1,000 ft., or 7 ft. to the pound.

Symons Panel Form System

(Patented in Canada and U.S.)

Each month sees more and more names added to the long list of Canadian contractors now using the Symons system of concrete forming. From the small contractor using only one set of forms to build a few houses up to the largest operators erecting pulp and paper mills, hospitals, motor plants, office buildings, educational institutions, large industrial plants—all through Canada Symons forms are proving their economy and superiority over all other panel systems.

Standard Panels. With the Symons system you use the same type of panel with which you are familiar — only the hook-up is different. Standard sizes are 2′ x 4′, 2′ x 6′ and 2′ x 8′. These may be all-wood construction, or wood frame with steel cross members which add considerably to their strength and prolong their life. With the exception of a few corners and fillers, which can be made on the job, this is all you require in the way of forms.



Build Your Own. Completely pre-fabricated forms may be purchased all ready for use, or you may build your own forms in your own shop. That is what most contractors have done, and it is one of the many advantages in using wood forms. We furnish blue-print details without charge. All you need in the way of tools is a table saw with dado head for cutting grooves, and a drill press for boring holes.

All-Wood Panels are built of standard 2 x 4's, with ¾″ exterior grade plywood facing. Reinforcing bands come already formed to fit your 2 x 4's. The stop plates, which reinforce the tie anchorage, maintain a constant spacing between the face of form and connecting bolt. Thus a uniform wall thickness is assured. Only these two accessories required to build your forms.

Steel and Wood Panels are built in the same manner, but the number of reinforcing bands is reduced and in place of wood struts and stop plates, you use Steel Cross Members. These are available for 2′ 0″ wide panels; 16″, 18″ and 20″ fillers. The light duty panel has Steel Cross Members on 24″ centres. On the heavy duty panel, which takes pressures up to 1,500 lbs. per sq. ft., they are spaced on 12″ centres so additional ties may be added where required.

Panel Ties. Symons Panel Ties are two-way ties, with welded loop ends that both space and tie the forms. They require no spacing washers, but have the customary 1″ break-back. They are anchored to the side of panels by means of the connecting bolt, which also locks adjoining panels together. The ties lie flat between the panels, so when stripping forms you simply remove the connecting bolt and the panels pull straight out.

Hardware. The only erection hardware required is a supply of short connecting bolts and wedges (for tying panels together and anchoring the tie), a few long connecting bolts (used only with 1″ and 2″ fillers), some waler ties and waler plates.

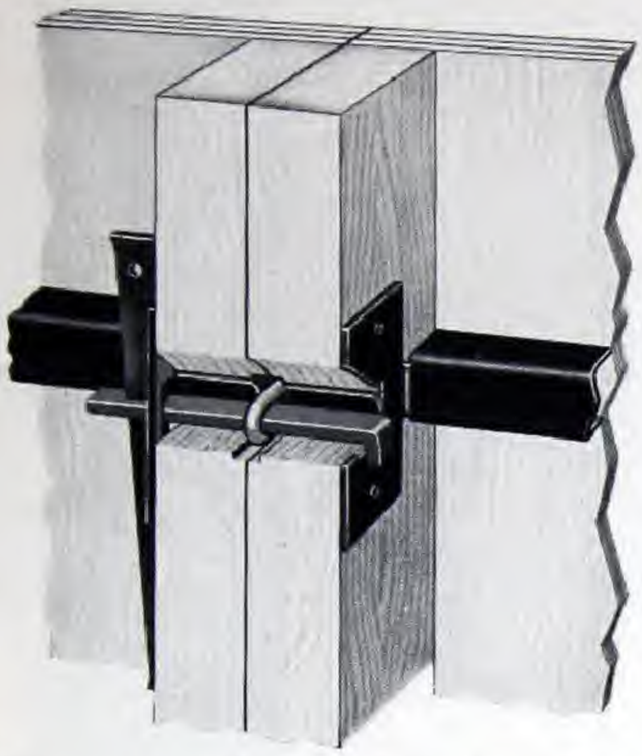
Service. We carry in Toronto warehouse at all times a large stock of panel ties in sizes from 6″ to 30″, also waler ties and all hardware items required for the building and erection of forms. Special size ties can be furnished upon short notice.

Our sales engineers are available at all times to assist you in planning your forms and in taking off quantities of hardware and ties required.

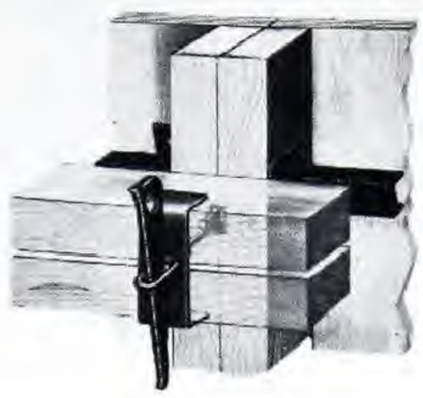
SYMONS TIES HAVE OVER 4,000 LB. TENSILE STRENGTH
RECOMMENDED FOR 3,000 LB. WORKING LOAD

D&R Simplifies Form Construction D&R

Assembly of Forms

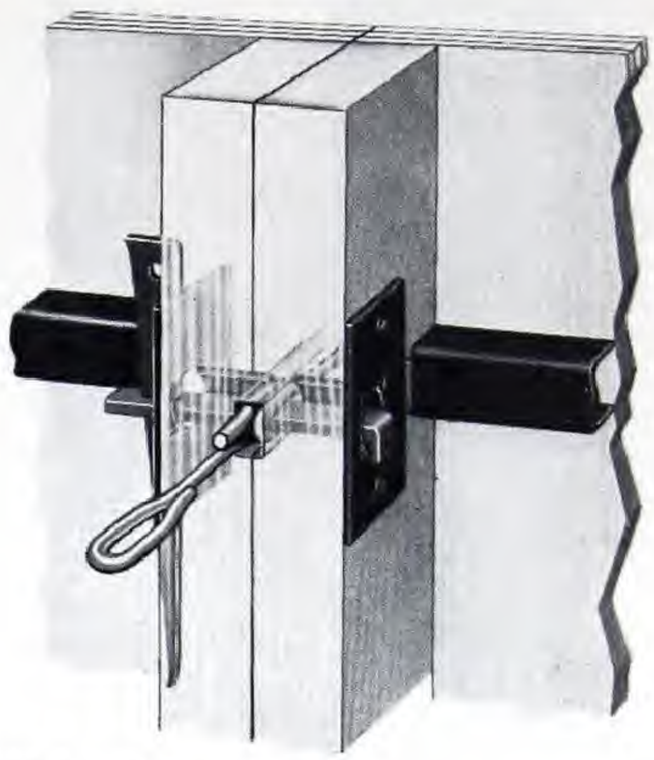


Cutaway section of two adjoining forms. Connecting bolt for panels also acts as anchorage for tie rods. This bolt has a slight taper, making it easy to remove, and is case hardened to prevent wear.



Waler assembly, showing tie, waler plate and wedge. The waler plate holds the two 2″ x 4″ members and eliminates need for a pre-assembled waler.

Waler Ties



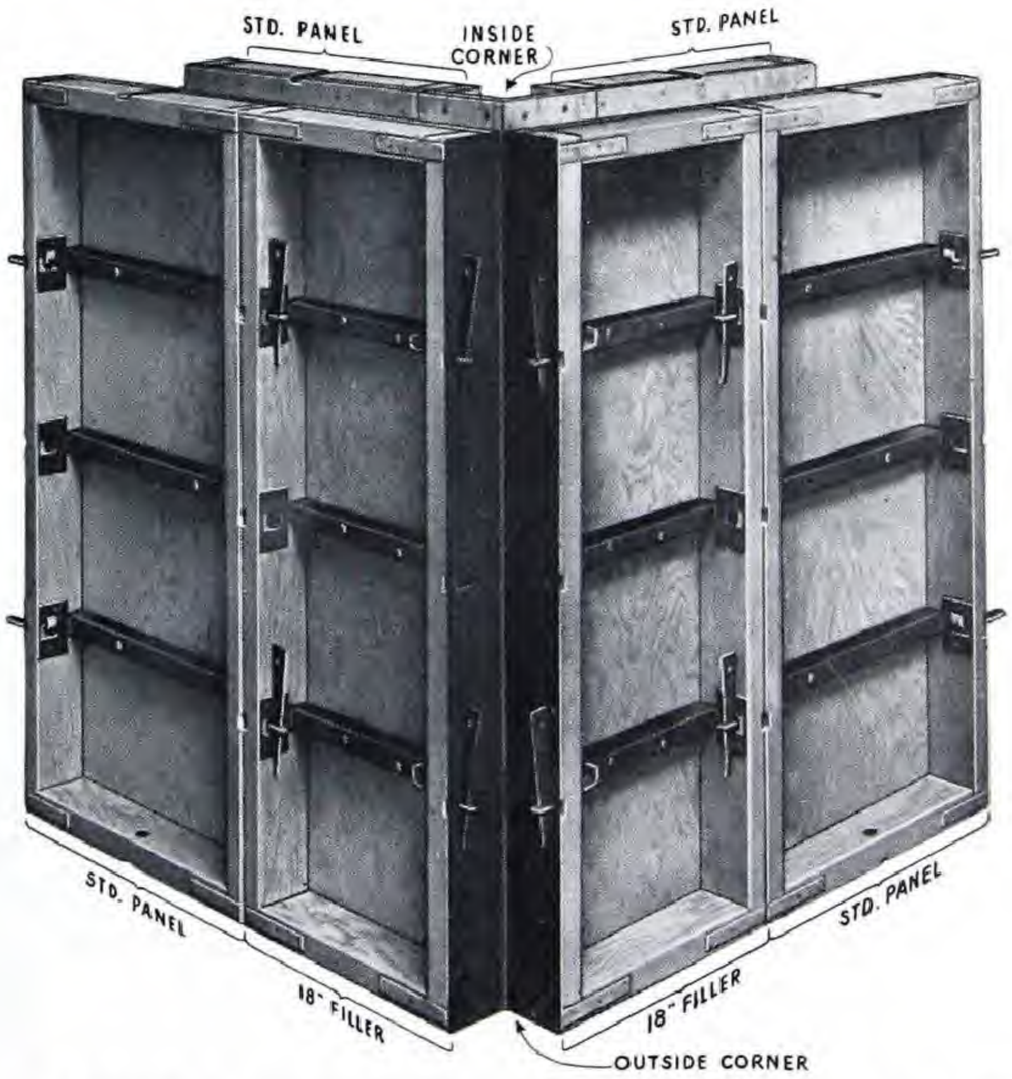
Waler Ties

Protruding wire is for wale or liner if required. Waler Ties operate independently of form ties and may be used an indefinite number of times.

Inside Corners

Inside Corners are made up on the job from detailed prints which we furnish. They are always 8″ x 8″, so the outside corner panel is always 8″ plus the wall thickness in order to line up the remaining panels. For example a 10″ wall would require 18″ corner panels or fillers, while a 16″ wall would use a standard 24″ panel.

Outside Corners

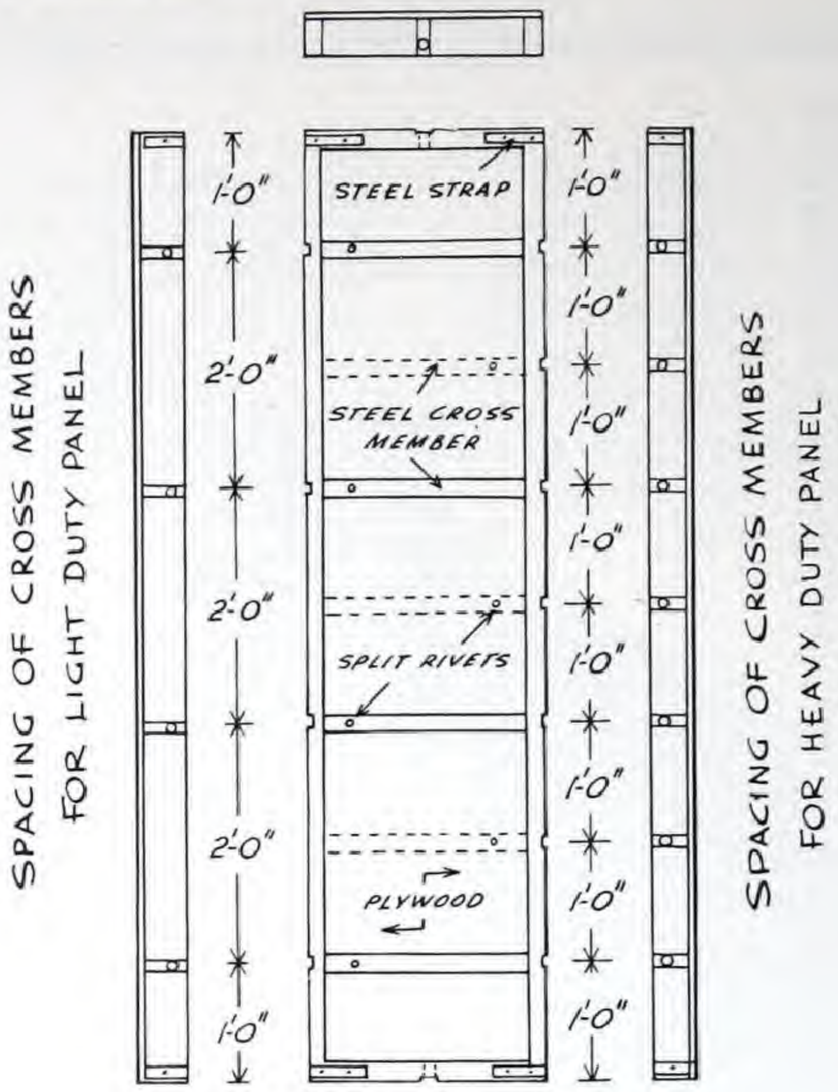


Outside Corners are steel angles suitably slotted to match the connecting bolt holes in the panels. They lock adjoining forms together to make a 90-degree angle. In erecting forms you should always start at the corners and work towards the centre of the wall.

Symons Panel Form System

Standard Panels — Steel and Wood Construction

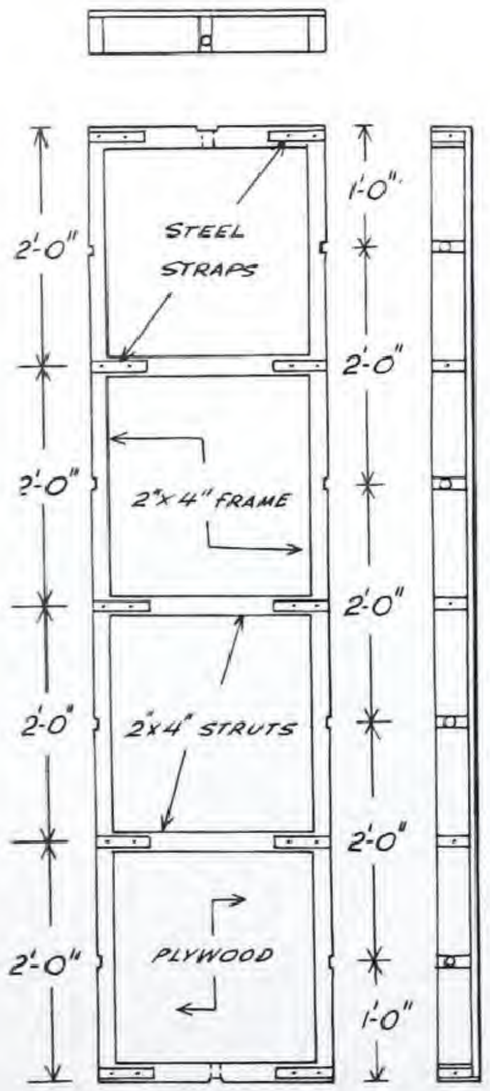
2'0" x 8'0"
Light Duty
Panel.



Spacing of Steel Cross Members
in construction of
Steel and Wood Panels.

2'0" x 8'0"
Heavy Duty
Panel.

Standard Panels — All-Wood Construction

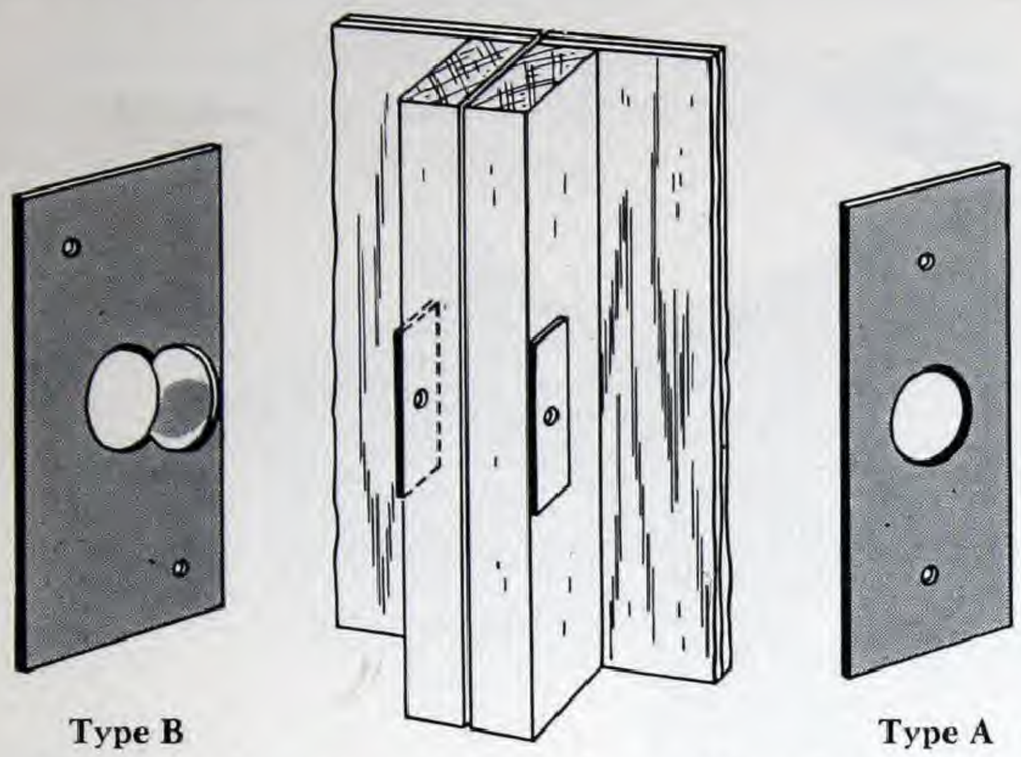


2'0" x 8'0"
All-Wood
Panel.

2'0" x 6'0" All-Wood Panels
Showing application of reinforcing bands.

D&R Simplifies Form Construction

Bearing Plates



Type B — Type A

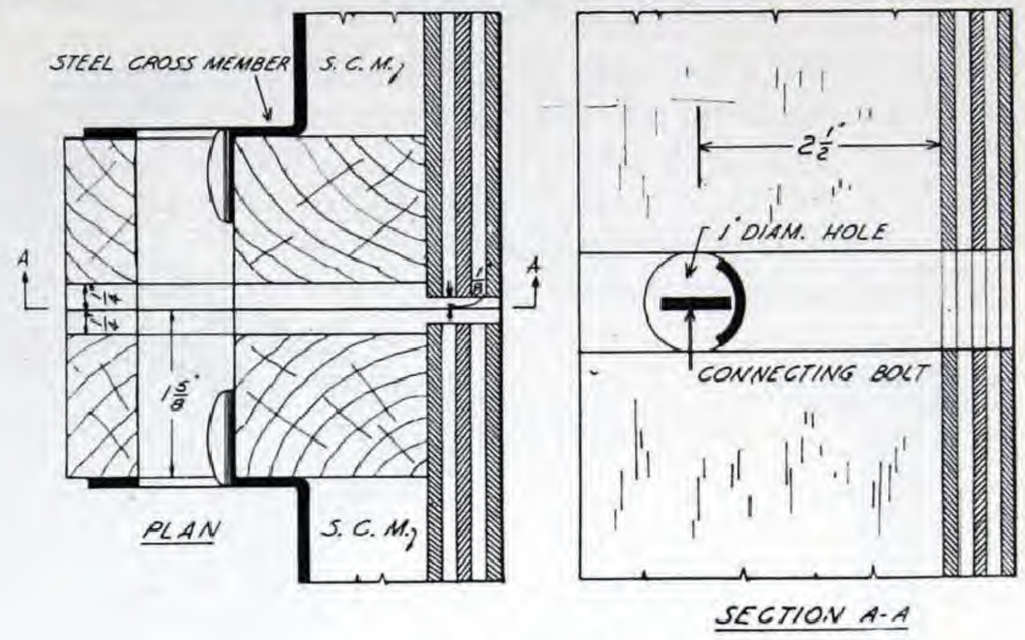
In applying connecting bolts and wedges in the erection of all-wood panels, the wedge is sometimes driven down too hard and cuts into the side of the wood frame. Bearing Plates overcome this. They are an optional item, but are recommended as they give protection to the frame and prevent the wedge from binding.

Type "A" has been used for some years by numerous contractors and has well proven its worth. It adds less than two cents per square foot to the cost of your forms.

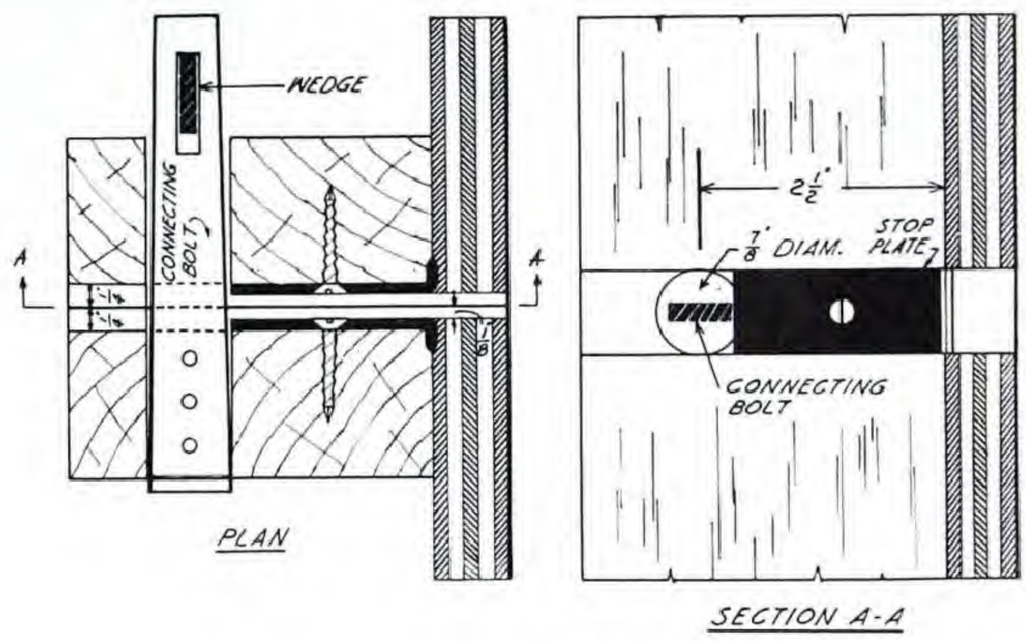
The new type "B" has an extruded lip that is placed in the cross hole through which the connecting bolt passes. It gives a bearing for the connecting bolt and obviates the necessity of using stop plates.

In using Type "B" Bearing Plates, the cross drilled holes through the panel frame must be 1" diameter, the same as if steel cross members were used, instead of the ⅞" hole used in other all-wood panels.

Spacing of Holes Required in Building Forms



Steel and Wood Panels Using Steel Cross Members.



All-Wood Panels Using Stop Plates.

Quantities Required

Panel Size 2′ x 8′	Reinforcing Bands	Stop Plates	Bearing Plates	Steel Cross Members	Short Connecting Bolts	Wedges
All Wood	10	10	10	—	5	5
Light Duty	4	2	2	4	5	5
Heavy Duty	4	2	2	7	8	8

The New Symons Flat Bar Tie

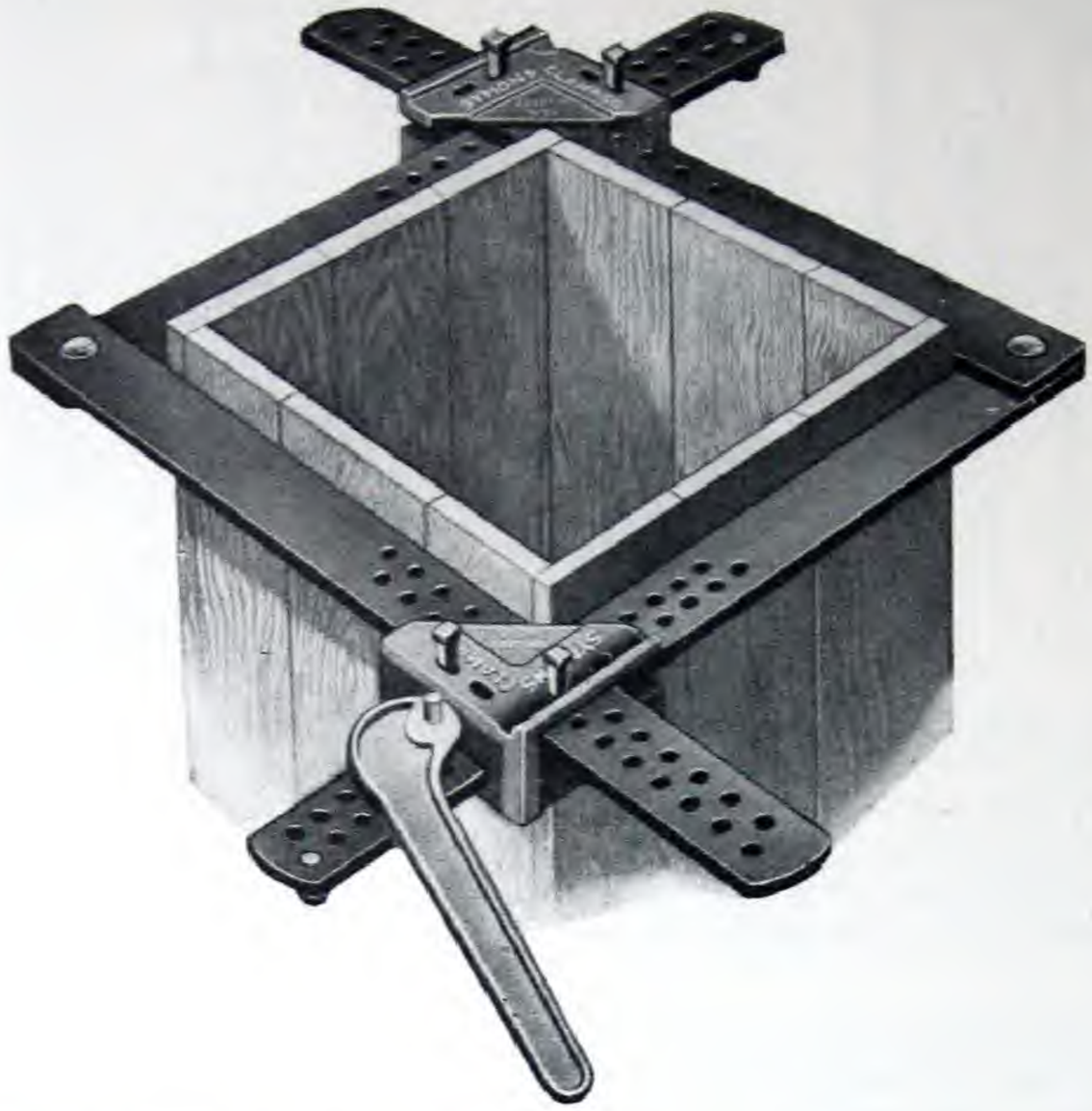
Flat Panel Ties are now available for use with the Symons system.

These ties are used in the same manner as the round wire ties and have the same safe load capacity of 3,000 pounds. Flat ties fit snugly in the tie slot and prevent leakage of grout. They are interchangeable with wire panel ties and may be used with wales in the same manner.

In "green" or poor grade concrete the flat surface and slotted holes give a better bond than the wire tie and they cannot turn when stripping. They break back about ¼" from the wall surface.

Symons Column Clamp

(OLD RELIABLE TYPE)



The OLD RELIABLE SYMONS CLAMP needs no introduction to Canadian contractors. It has been used on thousands of jobs throughout the country and its reputation to "stand up" is known from the Atlantic to the Pacific.

Design

The clamp consists of two pairs of pivoted arms of chrome manganese steel, with adjustable, malleable iron brackets attached. The brackets are held on by rivets and cannot slip off the arms. There are no loose or detachable parts, no bolts or nuts, no threads to become damaged.

Speed

Symons Clamps are fast in application because the brackets are instantly adjustable to column size. In changing from one size column to another, the brackets are simply slid along the clamp arm, tightened and locked with the nails supplied. There are no nuts to turn back or forward on the clamp. Likewise in removing the clamps, the tapered nails are readily removed by driving upwards and the clamp is released for further use.

Economy

Forms are constructed of 1" sheathing, with only light cleats to hold the boards together. No battens are required. Because of their greater strength fewer Symons Clamps are required than other types.

Service

We carry in Toronto warehouse Symons Clamps suitable for columns from 9" up to 84" in size – the largest range of sizes in Canada. Sizes from 30" to 60" are standard. Other sizes, including unequal-leg clamps, are made up on short notice.

Sizes and Specifications

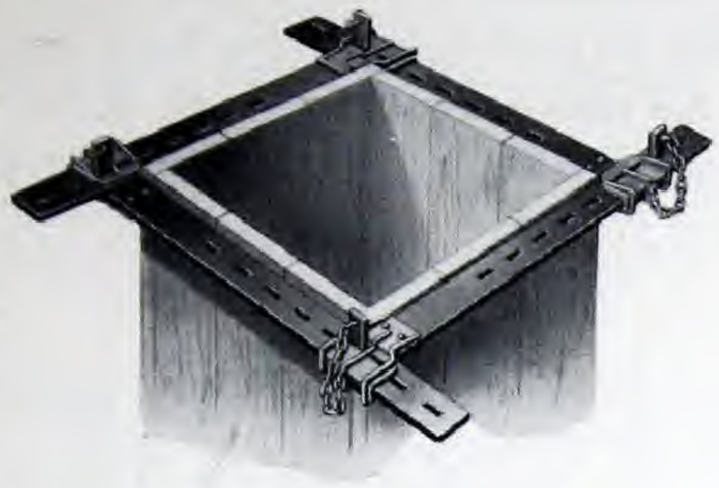
Size of Clamp	Size of Arms	Range of adjustment (net size of concrete)
30"	2" x $\frac{5}{16}$" x 30"	21" down to 9"
36"	2" x $\frac{5}{16}$" x 36"	27" down to 9"
48"	2½" x $\frac{5}{16}$" x 48"	38" down to 14"
60"	3" x $\frac{5}{16}$" x 60"	49" down to 25"

Above figures based on use of 1" form lumber

Column Clamps and Shores

D & R "Four-Square" Clamp

Contractors preferring a wedge type clamp will like the quick adjustment and sturdy construction of the "Four-Square" Clamp illustrated.



Design

The clamp consists of four separate arms, all identical and each equipped with a malleable iron adjusting bracket with chain and wedge attached. There are no loose parts.

Application

In applying the Four-Square Clamp any four pieces will work together and they cannot be put on wrong. Whether right side up or upside down, any way is right. You never have to take a clamp off and reverse it.

Adjustment

This clamp provides maximum range of adjustment and there are no blind spots. Whichever way the clamp is turned the wedge will adjust it to the smallest fraction. The range of adjustment is given in the table below. Clamp arms are interchangeable; therefore two bars 48" and two bars either 36" or 30" may be used together to clamp a column up to 40" in length and down to 8" in width.

Sizes and Specifications

Figures based on use of 1" form lumber

Size of Clamp	Size of Arms	Range of adjustment (net size of concrete)
30"	2½" x ¼" x 30"	22" down to 8"
36"	2½" x ¼" x 36"	28" down to 8"
48"	2½" x $\frac{5}{16}$" x 48"	40" down to 14"

D & R Adjustable Shore

The D & R Adjustable Tubular Steel Shore meets your shoring requirements with the maximum safety, speed and economy. It is a life-time shore that requires no 4 x 4's, no wedges, no cutting or fitting and no measuring. It gives you assured strength, with low depreciation and a minimum of maintenance expense.

Strength

Will outlast many 4 x 4's and take the same load.

Safety

No wedges or friction grip, so it cannot slip. When the collar is adjusted it is safely locked.

Speed

3 simple steps in setting up.

1 – Lift inner tube to approximate height.

2 – Insert steel pin through hole in tube.

3 – Turn collar up to final adjustment.

Adjustment

The screw thread gives you adjustment to a hair-line.

Economy

No cutting and waste of lumber. No wedges or splicing required.

Self Cleaning

As the adjusting collar on the shore is turned either up or down, it automatically cleans off any deposit of concrete that may have accumulated on the threads.

Sway Bracing

Shores are available with provision for attachment of sway bracing where required.

Standard Sizes

Size No.	HEIGHT Fully closed	Fully extended	Approx. weight
1	5 ft. 7 inches	9 ft. 10 inches	50 lbs.
2	6 ft. 7 inches	10 ft. 10 inches	54 lbs.
3	8 ft. 2½ inches	12 ft. 5½ inches	58 lbs.
4	11 ft. 0 inches	16 ft. 0 inches	72 lbs.

RENTAL OR PURCHASE

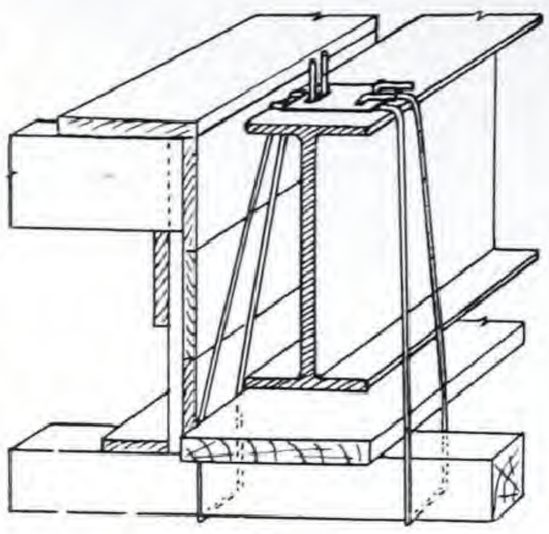
All D & R Clamps and Shores may be purchased outright, or rented with a 60-days option of purchase.

D&R Wire Hangers for Beam Forms D&R

"D & R" Wire Hangers provide a reliable and economical method of suspending beam and slab forms from structural members. Shoring is reduced to a minimum and these machine-made hangers have double the strength of the No. 9 annealed wire commonly used. Soffit Spacers are not required.

Security Beam Hanger

This hanger has been made by "D & R" for over twenty-five years and used on a great many buildings by leading contractors with unfailing satisfaction. It is practical and economical, and we have never had a failure on any job.



Made of $\frac{3}{16}$" Bright Basic Wire.

Application

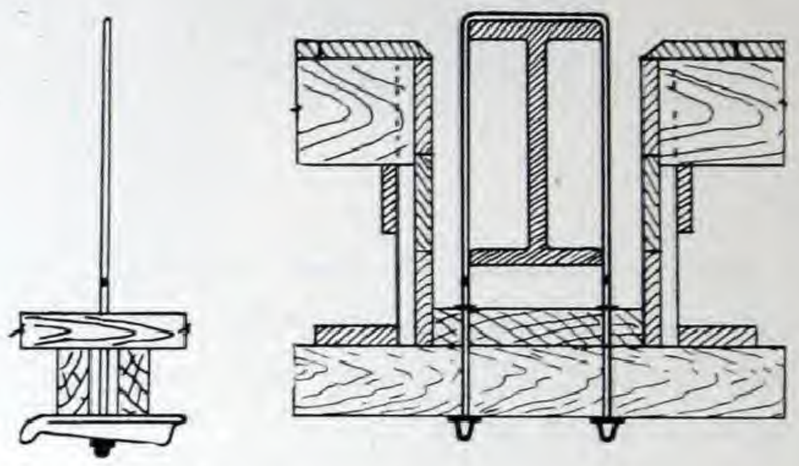
In using Security Beam Hangers the beam bottom is made up complete with cleats on the bench, and raised as a unit with the wires attached. The lock plate is then slipped over the ends of the stirrups and the wires bent back. This is done from above. From this point the beam and slab forms are built up as usual. As the wires straddle the cleat and come up between the beam bottom and sides, there are no holes to drill in either soffit board or cleat. Plain 2 x 4 or 4 x 4 cleats are used.

Spacing

Security Beam Hangers are usually spaced from 18" to 24" on centre, depending upon the span and thickness of slab to be carried. Their safe load capacity is 3,000 lb. per hanger.

Snap-Bak Beam Hanger

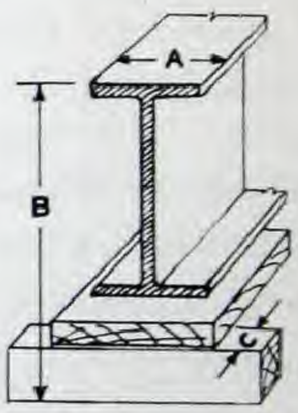
Fabricated from a standard Snap-Bak Form Tie, the Snap-Bak Beam Hanger will be found advantageous in securing a finished surface on concrete beams that are to be exposed. The break-back feature permits the wire to be broken back of the concrete face, so no metal is exposed. The small hole is readily grouted.



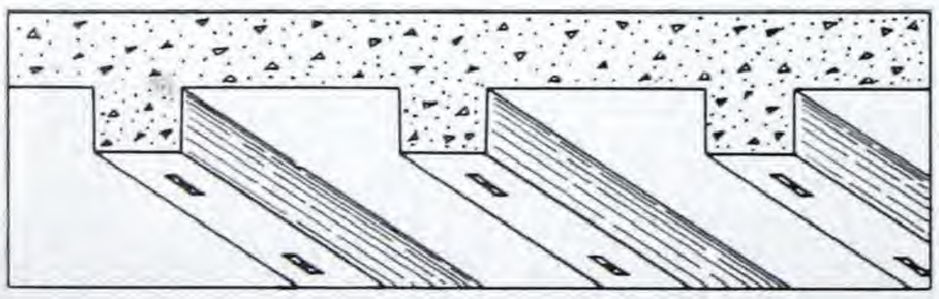
With Snap-Bak Hangers the regular snap tie wedge is used to tighten the beam bottom against spreader washers on the Hanger. Contractors not having this type of wedge may secure them on either a purchase or rental basis.

Recommended working load, 3,000 lbs.

INFORMATION REQUIRED WHEN ORDERING



Suspended Ceiling Hanger

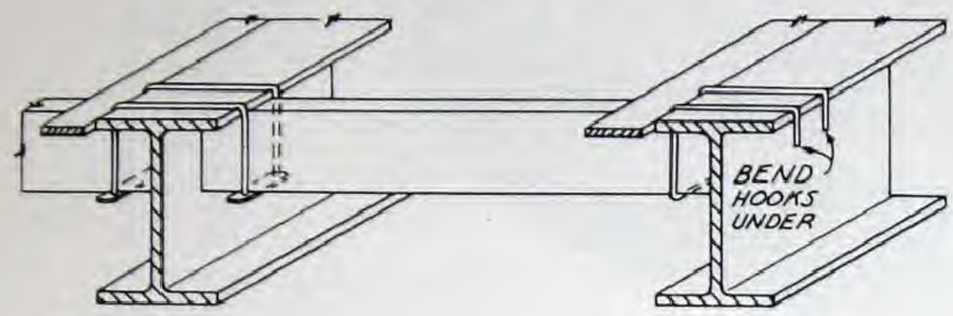


An economical insert for suspended ceilings and general use where light equipment is to be hung from beams or slabs. It is simple to install and the design provides good anchorage in the concrete.

Hangers and Soffit Spacers

Economy Beam Saddles

Where structural steel is exposed, Economy Beam Saddles provide a simple and time-proven means for hanging floor and roof slab forms.



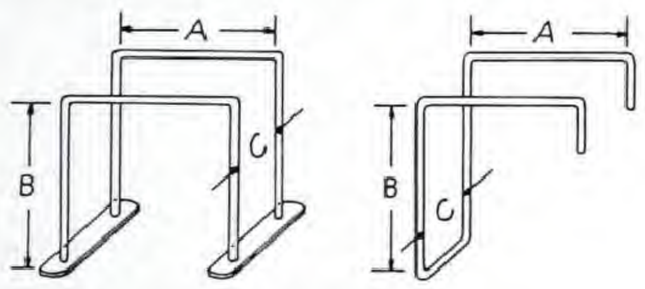
Application

As illustrated above the Beam Saddle is made in two types. On **inside beams** the double-leg saddle is simply dropped over the beam flange as the joists are placed. On **outside beams** a single or "hook" hanger is used, the open ends being bent under the flange.

Inside Hangers are made of $\frac{3}{16}$" bright basic wire. Outside Hangers are made of ¼" wire. Both are made up to order according to the width of beam flange and the size of joists or centering used.

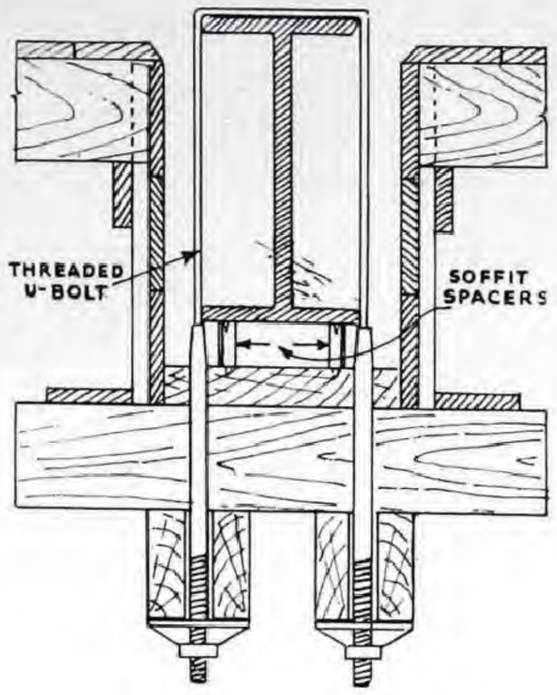
Beam Saddles are cheaper and quicker to apply than blocks and wedges. They are also stronger and more reliable than twisted wire. In tests Economy Beam Saddles have carried loads in excess of 6,000 lb. Recommended working load — 3,000 lb.

INFORMATION REQUIRED WHEN ORDERING



Heavy Beam Forms

hung with Form Clamps



The above detail suggests a method of hanging beam forms with one of our regular Form Clamps, with which many Contractors are already equipped.

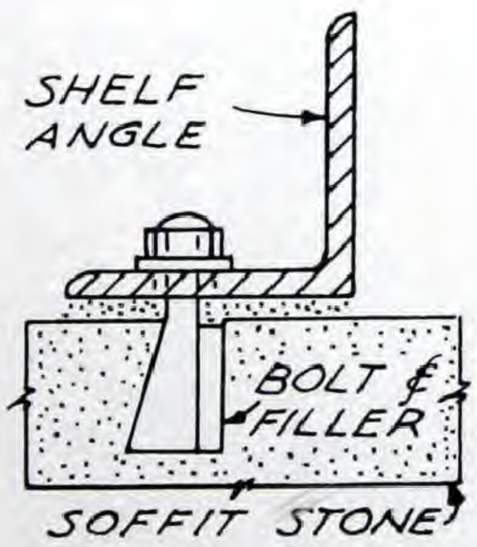
Using a mild steel threaded "U" bolt the carrying capacity is greatly increased over that of any type of wire hanger. The cleats should be spaced approximately 24" apart, but the spacing of clamps will depend upon the size of ledger used. After the removal of clamps the small hole in beam soffit can be readily grouted.

This assembly with ½" threaded bolts has a working capacity of 10,000 lb.

Bronze Lewis Bolts

Made of Grade "A" cast bronze, to support soffit stones by wedge action. Bolts have die-cut thread and are provided with hexagon brass nuts, plain round brass washers and square brass fillers.

Ask for specification sheet showing standard sizes.



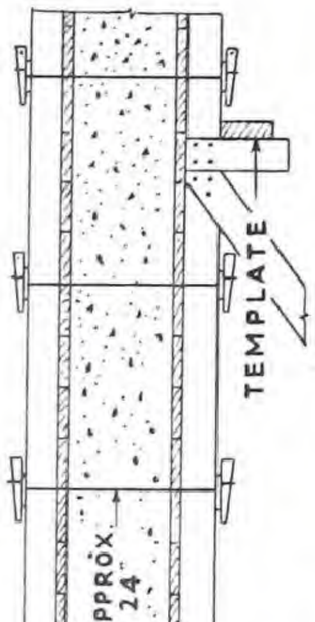
Soffit Spacers

Soffit Spacers are essential in structural steel buildings where the beam bottom is either wired to the frame or shored from below. Equally suitable for fireproofed steel columns.

Made with projecting prongs for attachment to the forms. They are placed on the beam bottom or column form at suitable intervals and permit the form to be drawn up tight without danger of changing the depth of fireproofing. When used in beam forms they should be placed to correspond with the spacing of hangers or shores.

Made of No. 18 ga. steel in heights of 1½", 2" and 3" (2" is standard).

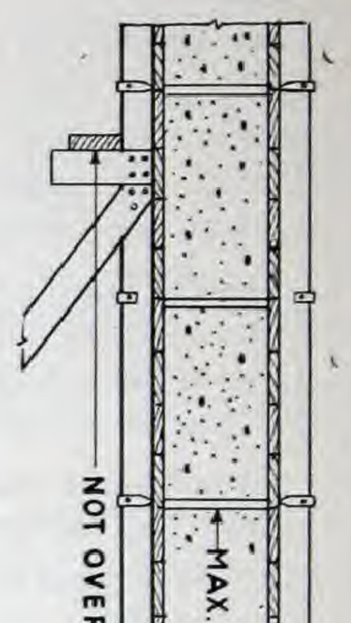
D&R Circular Tanks & Curved Walls D&R

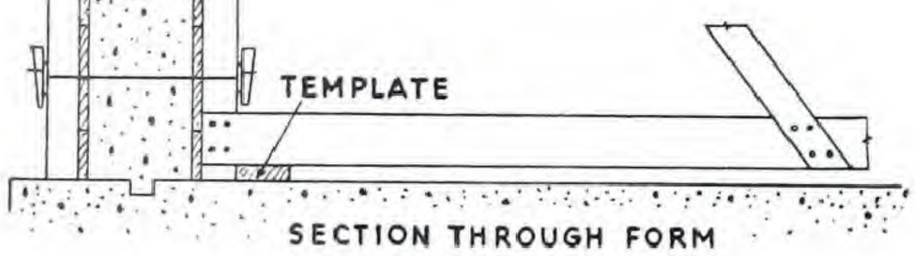


Both the Security Ty-Spreader and the Snap-Bak Form Tie have been used on many circular form jobs with completely satisfactory results in the finished job and good economy records for the Contractor.

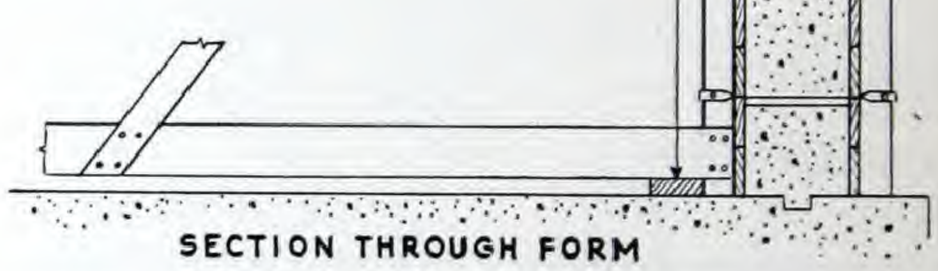
By the methods of construction detailed herewith the use of costly segmented wales is avoided and the wastage of lumber reduced to a minimum. One segmented template at the bottom and additional templates at not over 10′ centres will be found sufficient to maintain the radius, with radial braces not over 6′ 0″ apart.

After the inside forms are erected and braced, with form ties secured to every stud, the outer form is erected and drawn up tight against the Ty-Spreader or Form Tie washer. No wales are required. With the Security Ty-Spreader the usual single stud is used. With Kut-baK Ties or Snap-Bak Ties, double studs eliminate the necessity of wales. The special end Ties can be furnished on short notice.

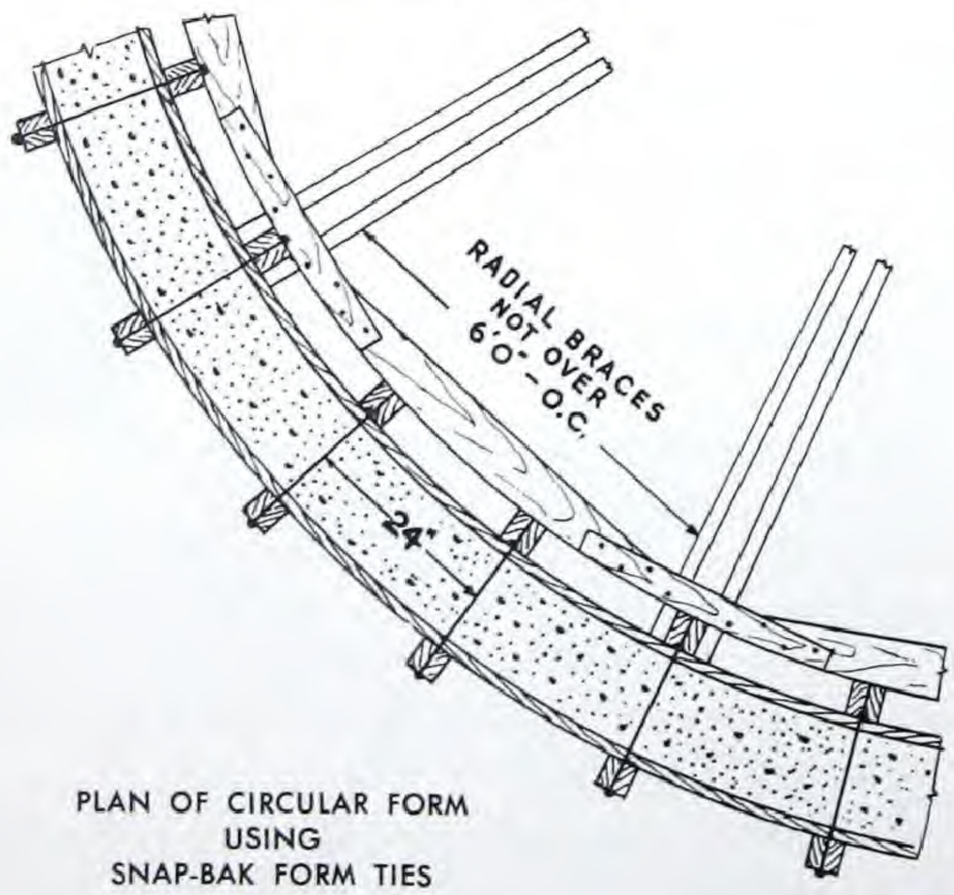




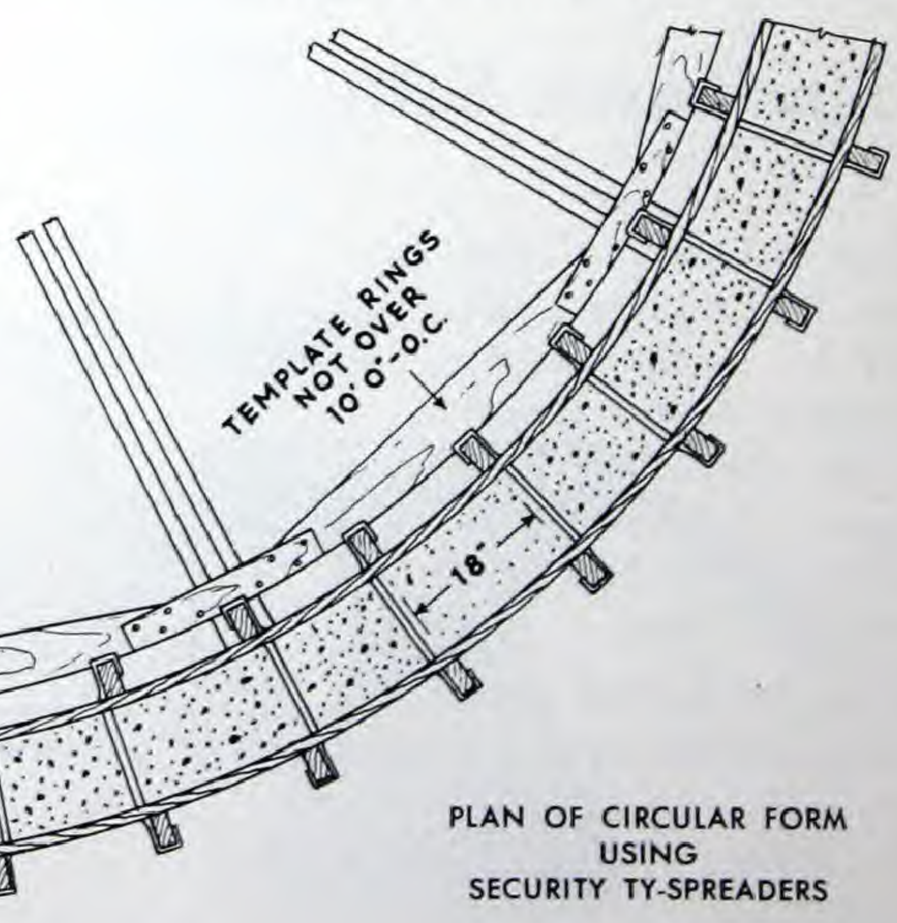
SECTION THROUGH FORM



SECTION THROUGH FORM



PLAN OF CIRCULAR FORM
USING
SNAP-BAK FORM TIES



PLAN OF CIRCULAR FORM
USING
SECURITY TY-SPREADERS

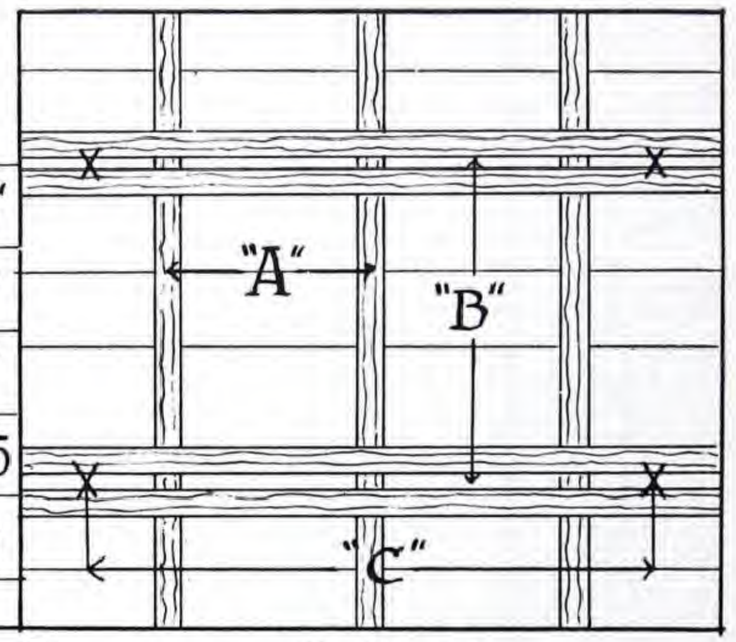
TABLE OF CONCRETE PRESSURES, FORM DESIGN AND TIE SPACING

The accompanying tables are based on the following Pressures in Wall Forms in pounds per sq. ft.

Pouring Temp.	Vertical Rate of pour 2'	3'	4'	5'	6'
50°	450	610	760	900	1030
70°	360	470	570	660	740

7/8" Sheathing: 2"x4" Studs: d. 2"x4" Wales

50°					Temperature of Concrete	70°				
2'	3'	4'	5'	6'	Rate of pour, per hour	2'	3'	4'	5'	6'
21	18	16	15	14	Safe spacing of Studs "A"	24	21	19	18	17
31	29	28	27	26	" " " Wales "B"	33	31	29	28	27
1160	1475	1775	2025	2230	Pressure per l.f. of Wales	990	1215	1375	1540	1665
33	29	27	25	24	Maximum spacing of Ties "C" (for safe value of Wales)	36	32	30	29	28



7/8" Sheathing: 2"x4" Studs: d. 2"x6" Wales

50°					Temperature of Concrete	70°				
2'	3'	4'	5'	6'	Rate of pour, per hour	2'	3'	4'	5'	6'
21	18	16	15	14	Safe spacing of Studs "A"	24	21	19	18	17
31	29	28	27	26	" " " Wales "B"	33	31	29	28	27
1160	1475	1775	2025	2230	Pressure per l.f. of Wales	990	1215	1375	1540	1665
51	45	41	38	36	Maximum spacing of Ties "C" (for safe value of Wales)	55	50	47	44	42

7/8" Sheathing: 2"x6" Studs: d. 2"x6" Wales

50°					Temperature of Concrete	70°				
2'	3'	4'	5'	6'	Rate of pour, per hour	2'	3'	4'	5'	6'
21	18	16	15	14	Safe spacing of Studs "A"	24	21	19	18	17
46	43	41	39	38	" " " Wales "B"	48	46	44	42	41
1725	2185	2600	2925	3260	Pressure per l.f. of Wales	1440	1800	2090	2310	2530
41	37	34	32	30	Maximum spacing of Ties "C" (for safe value of Wales)	45	41	38	36	34

Lumber

Tables are based on the use of No.1 Canadian Spruce or Norway (Red) Pine. Safe fibre stress is taken as 1650 lbs. per sq. in., and deflection limited to 1/360 of the span.

Vibrators

If mechanical vibrators are used reduce the spacings 15%

1 1/8" Sheathing: 2"x6" Studs: d. 2"x6" Wales

50°					Temperature of Concrete	70°				
2'	3'	4'	5'	6'	Rate of pour, per hour	2'	3'	4'	5'	6'
29	25	22	20	19	Safe spacing of Studs "A"	32	29	26	24	23
40	37	35	34	33	" " " Wales "B"	42	40	38	36	35
1500	1880	2220	2550	2830	Pressure per l.f. of Wales	1260	1565	1805	1980	2160
45	40	36	34	32	Maximum spacing of Ties "C" (for safe value of Wales)	49	44	41	39	37

Spacing of Ties

To determine the spacing of ties, divide the recommended working load of the clamp by the pressure per lin. ft. on the wales x 12 = spacing in inches of ties along the wales.

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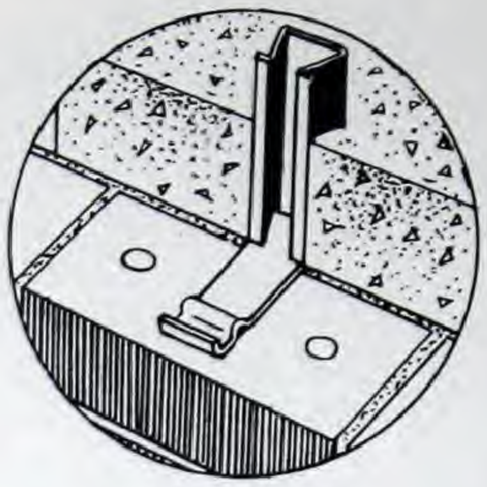
Dovetail Anchor Slot

The specification of D & R Dovetail Anchor Slot assures the Architect or Engineer of the most effective and permanent anchorage for all types of masonry to concrete walls, beams or columns. In using Anchor Slot, with Dovetail Anchors, *you know* that individual ties are not going to be buried in the concrete, or be installed at the wrong level. Dovetail Anchors always come at exact course levels.



Covered Slot. Serves the same purpose as felt-filled slot at a substantially lower cost. Instead of filling the complete slot, the open face is covered by a wax-impregnated fibre board.

Advantages. Anchor Slot moulds a continuous wedge-shaped slot in the face of the concrete, into which the Dovetail Anchor is inserted. The security and permanence of this anchorage is apparent. Its strength lies in the wedge action against the surrounding concrete, rather than in the metal slot itself. You never have to bend dovetail anchors – they are inserted as the wall progresses at exact course heights and develop the full strength of the metal.

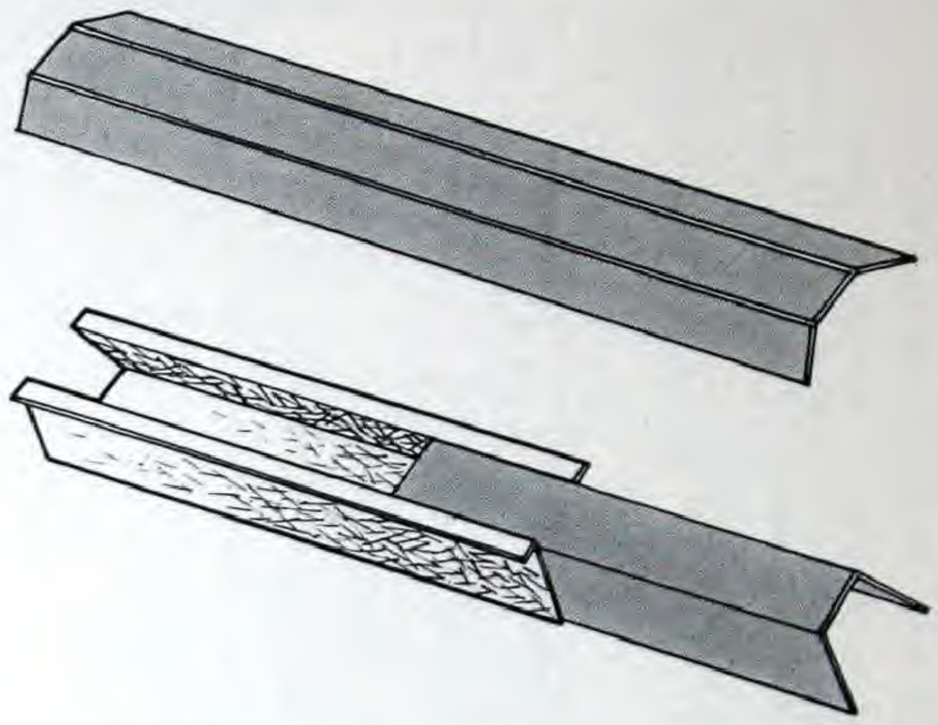
Economy. Anchor Slot is economical because a full length is placed in the time ordinarily required to nail two or three brick ties or wires to the form. Also you never have to measure course heights and never have to buy and install ties that are buried in the concrete and lost.

AVAILABLE IN 3 TYPES

Standard Slot. The standard open slot meets the requirements on most jobs. It is made from galvanized steel in 8′ and 10′ lengths. The standard weight is 24 gauge, but also available in 22 gauge and 26 gauge. It can be readily cut to required lengths on the job, or factory cut to shorter lengths for a nominal charge.

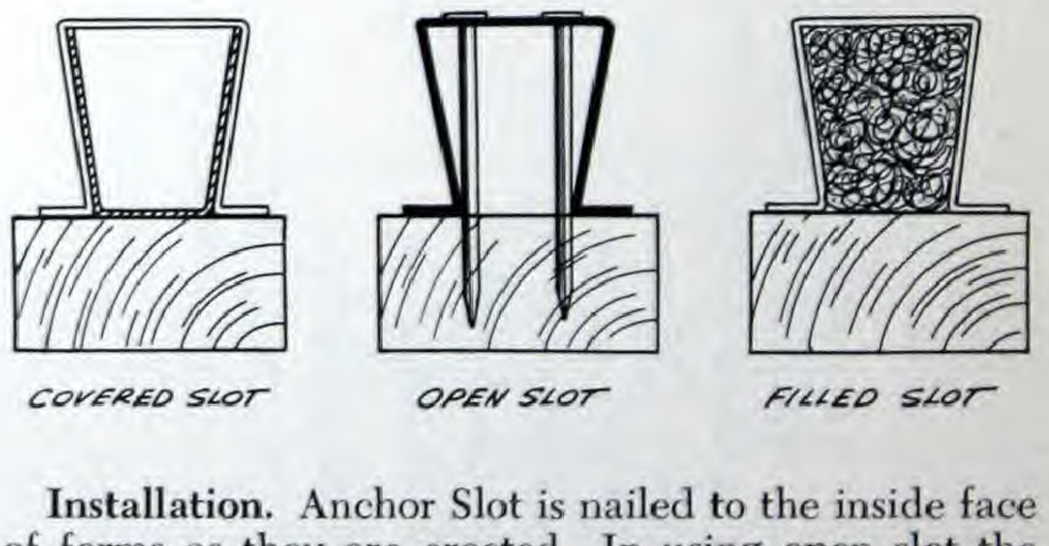
Filled Slot. Where mechanical vibrators are used felt-filled or covered slot is recommended, as it is virtually impossible to prevent some of the cement grout from seeping into the open slot. Such seepage interferes with the insertion of anchors.

The felt filler, by eliminating this seepage, saves the delay and cost of removing this hardened grout. It may be purchased in standard packages, to be used as required, or the slot may be purchased with the filler inserted, as customary.



Cover-Slot Insert. (Patent Pending). The new Cover-Slot Insert will be found a great convenience in the installation of anchor slot. It not only prevents seepage of grout, but is also an excellent splice to join two or more lengths of slot into a continuous run.

Cover-Slot comes in bundles of 250 x 4′0″ lengths. It is already creased for ready insertion into the slot and completely covers the open face.

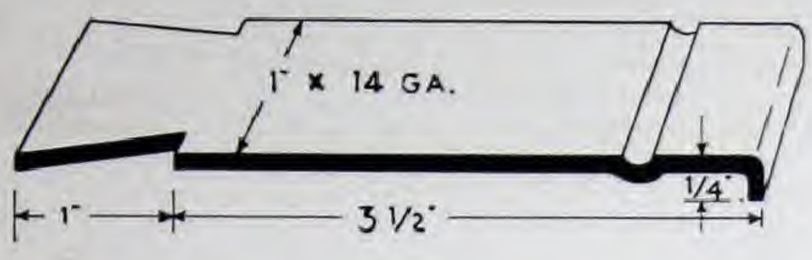


Installation. Anchor Slot is nailed to the inside face of forms as they are erected. In using open slot the ends should be plugged with short lengths of filler to prevent seepage.

In columns up to 16″ wide one slot is sufficient. In wider columns space not over 16″ apart, and in beams and walls the usual spacing is 16″ to 24″ maximum. Slots are furnished with indentations every 6″ to prevent nails slipping.

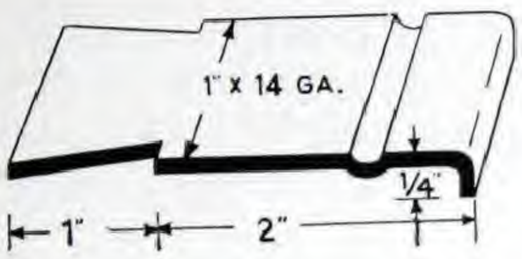
Dovetail Masonry Anchors

Dovetail Brick Anchors



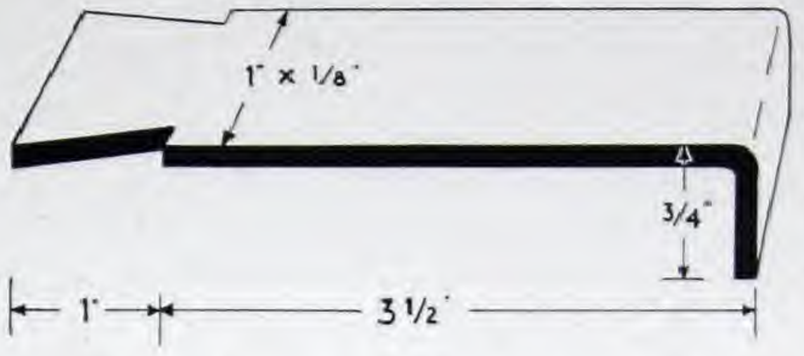
The standard anchor is made in 1" x 14 gauge and 16 gauge galvanized steel, crimped and bent ¼" at the end as illustrated. Also available in 18 gauge steel galvanized after forming. All anchors may be obtained in any desired length, in copper, or steel galvanized after forming.

Dovetail Furring Anchors



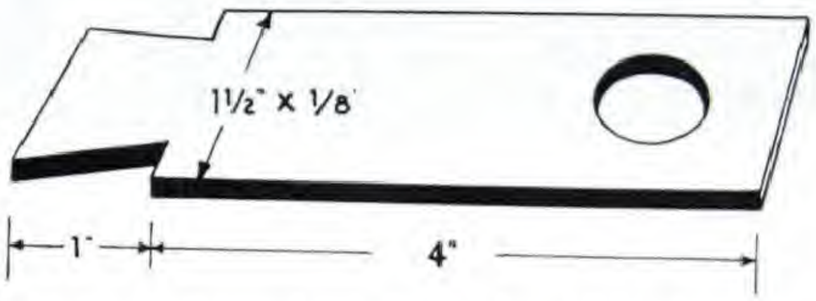
Identical to the standard brick anchor, except for length.

Dovetail Stone Anchor

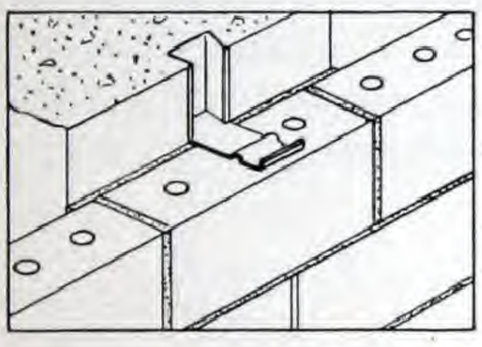


The standard stone anchor is 1" x ⅛", with ¾" bend. Also made in any thickness required from 12 gauge (standard) to ¼", in plain steel, galvanized steel, copper, bronze or other metal specified, and in special shapes to meet job requirements.

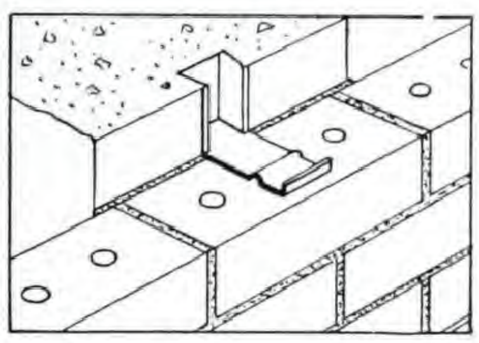
Dovetail Dowel Anchors



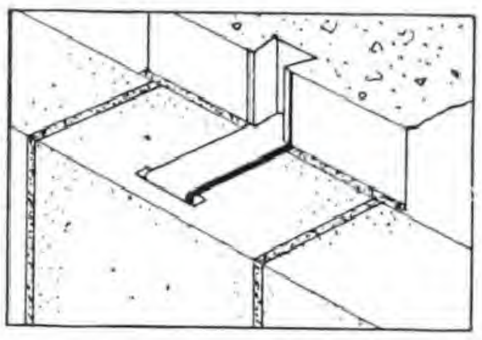
Made in various lengths and widths to take either ⅜", ½" or ⅝" dowels. Dowels available in brass, bronze, copper and steel, plain or galvanized.



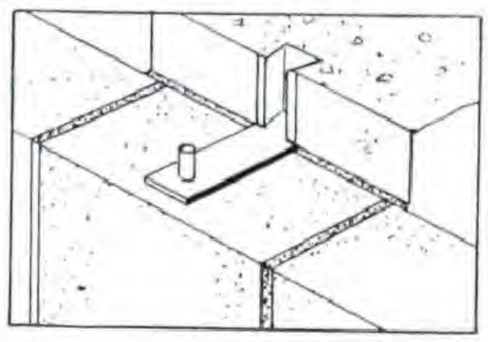
Furring Anchor



Brick Anchor



Stone Anchor



Dowel Anchor

Standard Masonry Anchors

"U" Type

Regularly furnished in the following sizes:

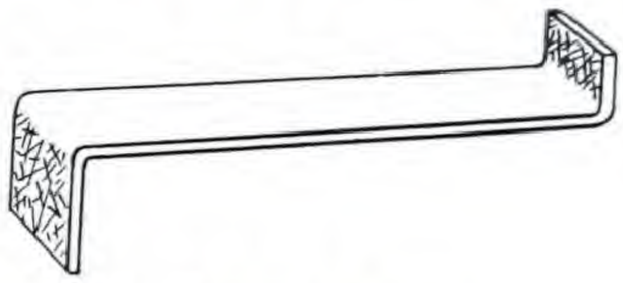
⅛" x 1", ⅛" x 1½", 3/16" x 1"
3/16" x 1¼", 3/16" x 1½", ¼" x 1", ¼" x 1¼"

The standard hooks are ½" and 1½" or 1" and 1" inside and lengths are 6", 8", 10" and 12" between bends.

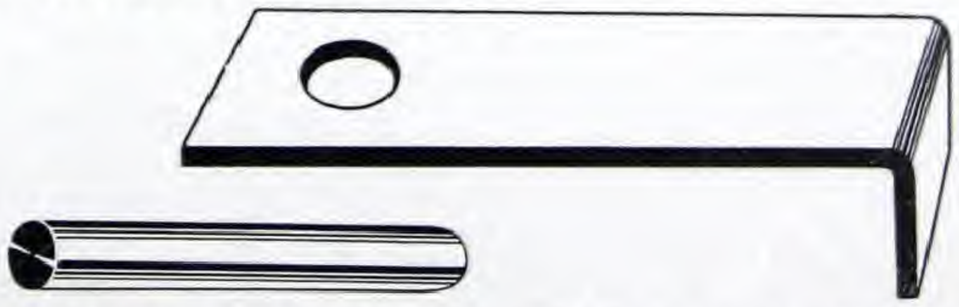
In ordering, specify the type, length, width, thickness and class of material.

Furnished in black iron, either plain or galvanized after forming, also in copper or bronze.

"Z" Type

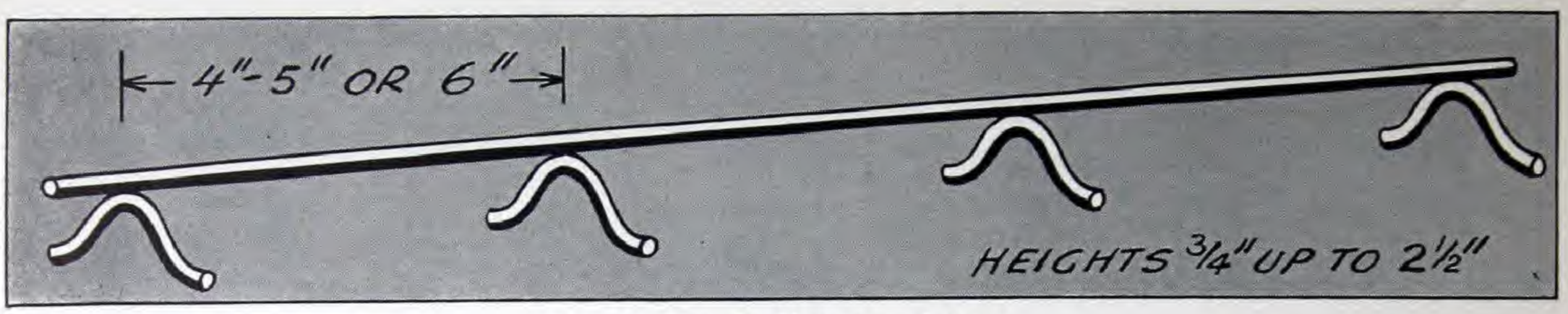


Dowel Anchors

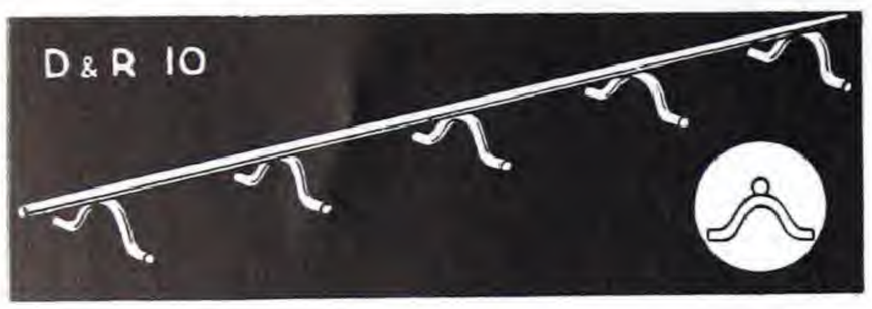


Anchors and dowels are available in various lengths; choice of anchor material the same as listed on the left.

Slab Chairs and Spacers

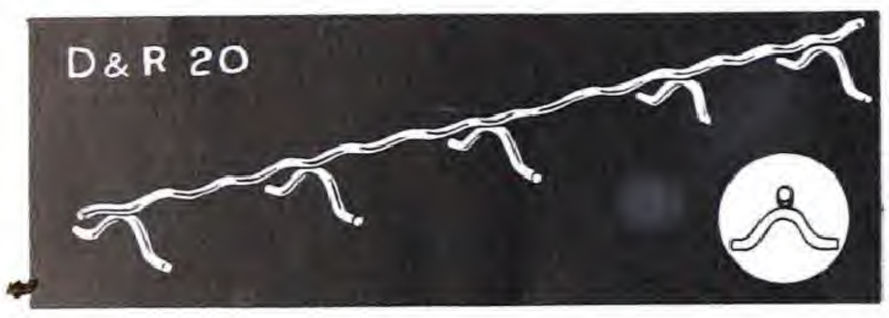


No. 10 D & R Slab Bar Bolster



No. 10 Slab Bar Bolster is the standard type preferred by most contractors and is made regularly with legs on 4", 5" and 6" centres, and in heights from ¾" to 2½".

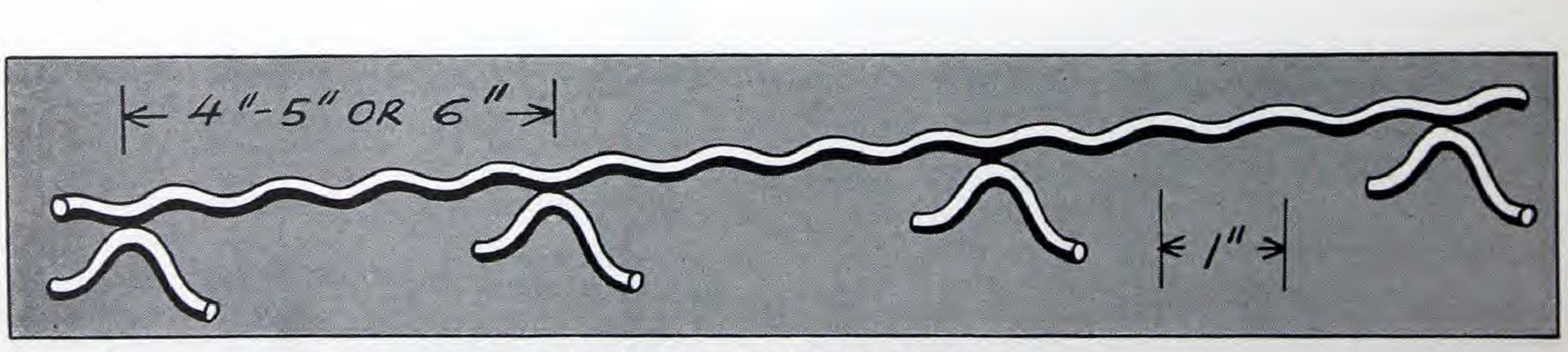
Legs – No. 6 ($\frac{3}{16}$") wire.
Upper Wire – $\frac{3}{16}$" or ¼".
Standard Length – 5'0".



No. 20 Slab Bar Bolster follows the same specification as No. 10 in spacing of legs, height and diameter of wire. The upper wire, however, is crimped or corrugated. These corrugations on 1" centres serve as a guide to the steel setter in spacing the steel and also prevent it sliding along the support bar.

No. 30 Slab Bar Spacer is furnished with any desired spacing of legs, with a seat at every bar position. It facilitates steel placing, and tells at a glance the absence of any bars. Made in heights from ¾" to 2½".

Legs – No. 6 ($\frac{3}{16}$") wire.
Upper Wire – $\frac{3}{16}$".
Standard Length – 5'0".



No. 20 D & R Slab Bar Bolster

Beam Chairs and Spacers

No. 50 Beam Bar Bolster is used by a great majority of contractors and has given uniformly satisfactory results on all types of jobs over a period of many years. Furnished with legs on 2″, 3″ or 4″ centres, according to the size of steel to be supported, and in heights from 1″ to 2½″.

Legs – No. 6 ($\frac{3}{16}$″) wire, on 2″, 3″ or 4″ centres.

Upper Wire – $\frac{3}{16}$″ or ¼″.

Standard Length – 5′0″.

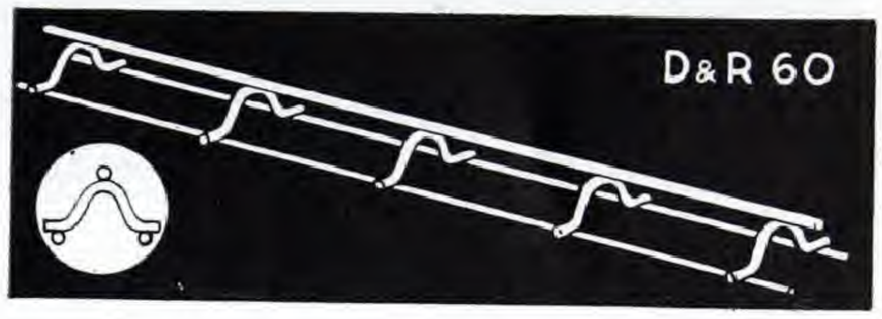
No. 60 Upper Beam Bolster is designed to carry the upper layer of bars in two- or three-layer beams. Legs are spaced on 2″, 3″ or 4″ centres, in heights from ¾″ to 2½″.

Legs – $\frac{3}{16}$″ wire.

Upper Wire – $\frac{3}{16}$″ or ¼″.

Lower Wires – $\frac{3}{16}$″.

Standard Length – 5′0″.



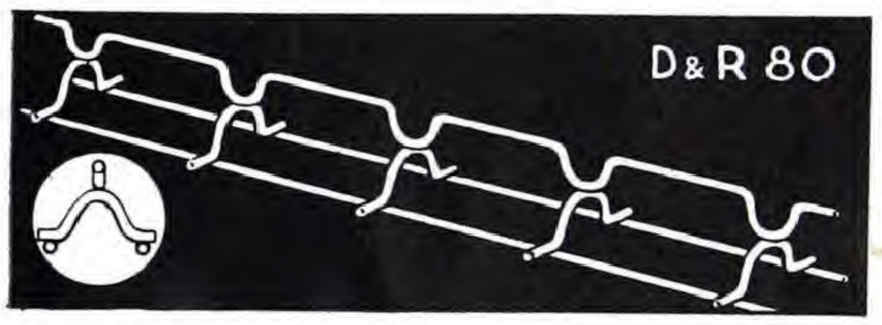
No. 80 Heavy Beam Spacer. Designed primarily for use on railroad, bridge, subway, dock and other types of unusually heavy construction where a large number of extra heavy bars are to be carried. Fabricated with a seat for every bar position on either uniform or variable spacing, and in heights from ¾″ to 2½″.

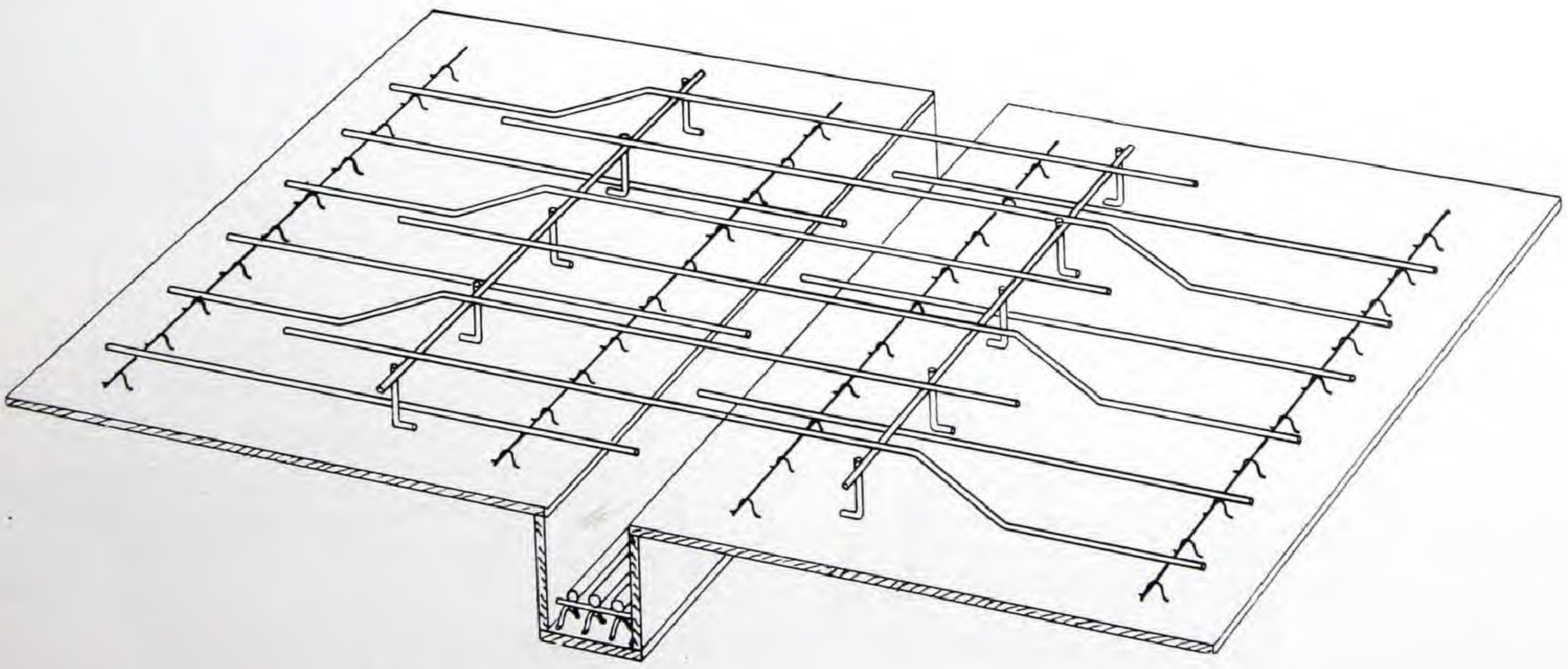
Legs – $\frac{3}{16}$″ wire.

Upper Wire – $\frac{3}{16}$″.

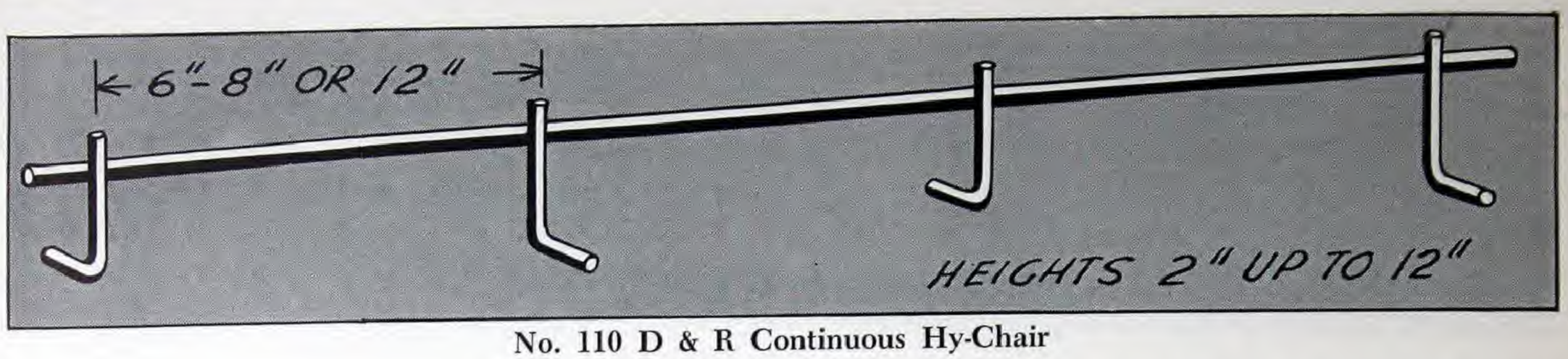
Lower Wires – $\frac{3}{16}$″.

Length – as specified.

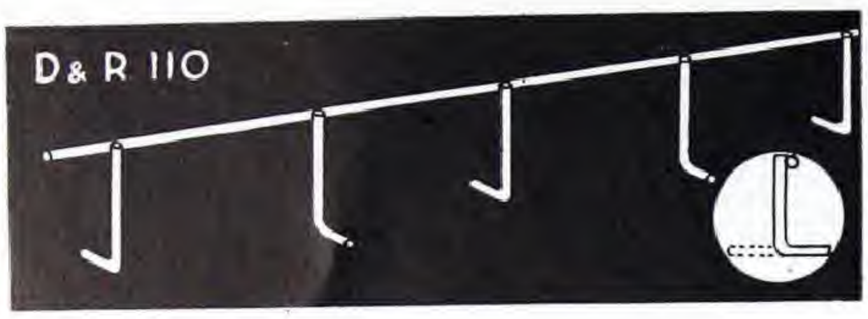


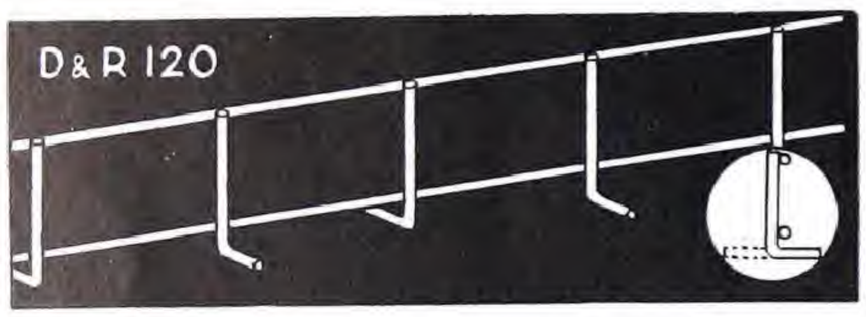


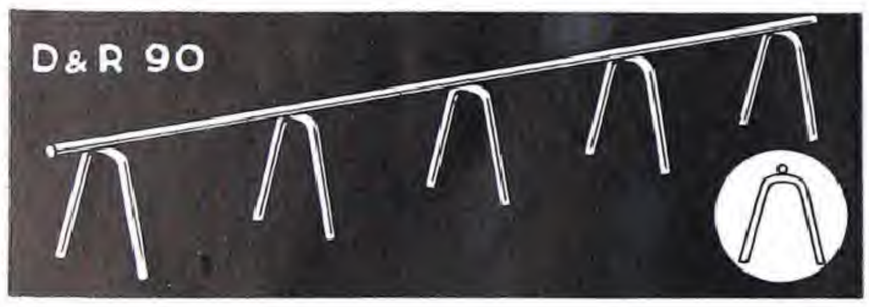
Hy-Chairs and Screed Chairs



No. 110 D & R Continuous Hy-Chair







No. 110 Continuous Hy-Chair has become standardized by a great many prominent contractors who have used it consistently over a period of many years. The feet on the supporting legs have a spread approximately equal to the height, so the chair cannot be readily upset. Made in heights from 2″ up to 12″.

Legs – up to 6″ in height ¼″ wire.
over 6″ in height $\frac{5}{16}$″ wire.

Upper Wire – ¼″ diam. with legs on 8″ centres.
$\frac{5}{16}$″ diam. with legs on 12″ centres.

No. 120 Double Hy-Chair serves the double purpose of supporting both the upper and lower slab bars. This combination chair is very economical in use, as it takes the place of separate Hy-Chairs and Slab Bolsters in the one unit.

No. 90 Continuous Hy-Chair is made to the same specifications as No. 110, except for the "U" type of leg which is preferred by some contractors and made up on special order.

No. 90 Screed Chair. Where added finish will cover the exposed top bar, this chair is very satisfactory as a **Continuous Screed Chair.** Furnished in 5′ or 10′ lengths, with $\frac{5}{16}$″ diameter upper wire and ¼″ legs on 12″ centres. The legs are curved for nailing to the form.

Individual Hy-Chairs and Screed Chairs

Type A

"D & R" Individual Wire Chairs are used very extensively both as a support for upper steel and as a screed support. As a **Hy-Chair**, these individual chairs are spaced not over 4′ apart, with a carrying bar to support upper steel in slabs and bent bars at beams, girders and columns. They are frequently used in place of Continuous Hy-Chairs.

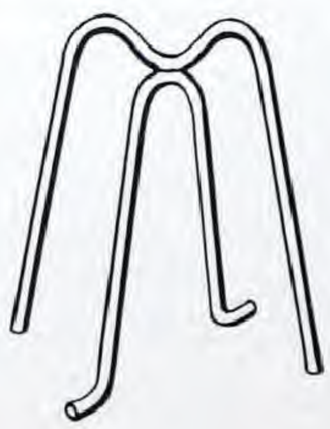
As a **Screed Chair** they are used in combination with a water pipe (usually ¾″ inside diam.) or a round rod as a screed bar. They should be spaced not over 4′ apart.

Made of ¼″ wire up to 6″ in height; $\frac{5}{16}$″ wire over 6″.

Type B

Type B

Screed Chair, with curved legs for nailing to forms.



Type B

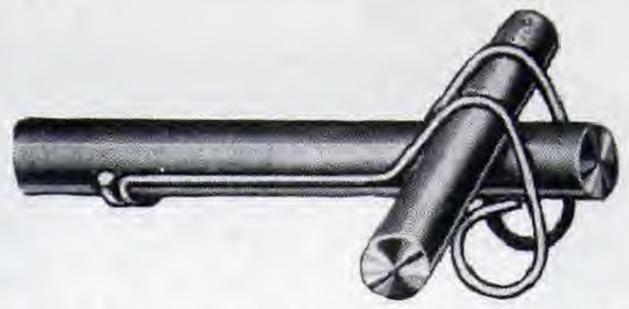
Hy-Chair, with laced legs, as used in extreme heights.

Individual Slab Chairs

Band Iron Chair

Band Iron Chair. This Individual Chair is very popular among many contractors because of its great convenience, simplicity and strength. Used to support slab steel in lieu of slab bolsters in many cases, particularly on small jobs and broken areas, also in manufacture of pre-cast concrete slabs, etc. Made of No. 16 gauge steel, and will carry heavy loads. Available in heights from ¾" to 1½" and will take bars from ⅜" to ¾" diameter.

Ty-Chair



"D & R" Ty-Chair. A spring-wire combination bar support and tie. Designed to support the lower bar ¾" above form. Two sizes only required for many combinations of bars.

No. 1 Ty-Chair is used with two bars having a combined diameter not over 1".

No. 2 Ty-Chair for combined diameter over 1" and not over 1⅜".

"D & R" Ground Screed Chairs

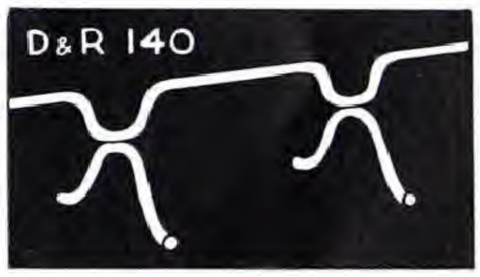
Wherever a concrete slab is poured over a fill of sand or cinders, the "D & R" Ground Screed Chair will be found a most economical and efficient device for screeding your slab. They are used with a 2 x 2 or 2 x 4 wood stake and the nail point readily drives into the end of stake. Either a flat bar, usually ½" x 1½" or ½" x 2", or a round pipe is used as a screed bar.

After fill is in place, drive stakes to approximate level of fill, spacing the stakes about 4' apart in rows on 4' centres. Next, install screed chairs slightly above the level of slab, place target rod on bar seat and drive to exact height, using transit to level. Finally place two or more rows of screed bar in position and when concrete is poured, screed with straight-edge as usual. Do not lift the screed bars, but draw them through the bar seat as required.

WHEN ORDERING, GIVE US THE TYPE AND SIZE OF SCREED BAR BEING USED, AND THICKNESS OF SLAB.

Joist Bar Spacers

No. 130 Joist Spacer is a strong and economical chair designed to support two bars up to ¾" diameter in 4", 5" and 6" joists. Made of $\frac{3}{16}$" wire, with centre leg electrically welded, in heights of ¾" and 1".



No. 140 Joist Spacer is recommended where bars over ¾" diameter are used, as it has a supporting leg under each bar. Made of $\frac{3}{16}$" wire, with two legs electrically welded, in heights of ¾", 1" and 1½".

Contractors handling the vast majority of construction work throughout Canada use pre-fabricated ties, chairs, spacers, etc., for tying and supporting their reinforcing steel. To those who are not using such devices, may we suggest that you will find them greatly superior in accuracy, speed, reliability and economy.

Standard D & R accessories illustrated herein meet all normal job requirements, but frequently special items are called for. With over forty years experience in the handling of concrete and reinforcing accessories, our experienced staff and modern, fully equipped production shop can develop and turn out special designs upon short notice. Our engineering department will gladly work with you at all times.

SEE PAGE 48 FOR ACCESSORY SPECIFICATIONS

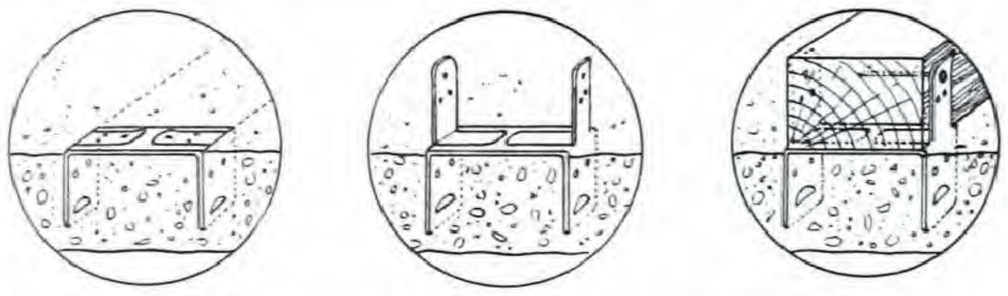
Floor Sleeper Anchors

Double Leg Anchors

Type A

Wherever wood floors are to be laid over concrete, "D & R" Floor Anchors enable the Architect to secure the many desirable advantages of wood as a flooring surface, without the disadvantages caused by insecure anchorage. During recent years these anchors have proved their value on millions of square feet of floor area in apartments, schools, institutional buildings, warehouses, offices, etc., throughout Canada.

"D & R" Floor Anchors are made of heavy gauge galvanized steel 1½" wide, with projecting lugs in the legs which are imbedded 1¾" into the concrete to give a secure and permanent anchorage. The tabs which are bent up to nail to the sleeper are much more rigid than any type of wire tie or anchor and hold the sleeper firmly against movement in any direction.



THREE SIMPLE STEPS in laying wood floors over concrete.

1. Install anchors just before the concrete has attained its initial set. The wide body of the anchor prevents it being imbedded too deeply.
2. Bend up the nailing tabs ready to receive the sleepers.
3. Set sleepers in place, level and nail securely, being sure to grout any hollow spots under sleeper with a good cement mortar.

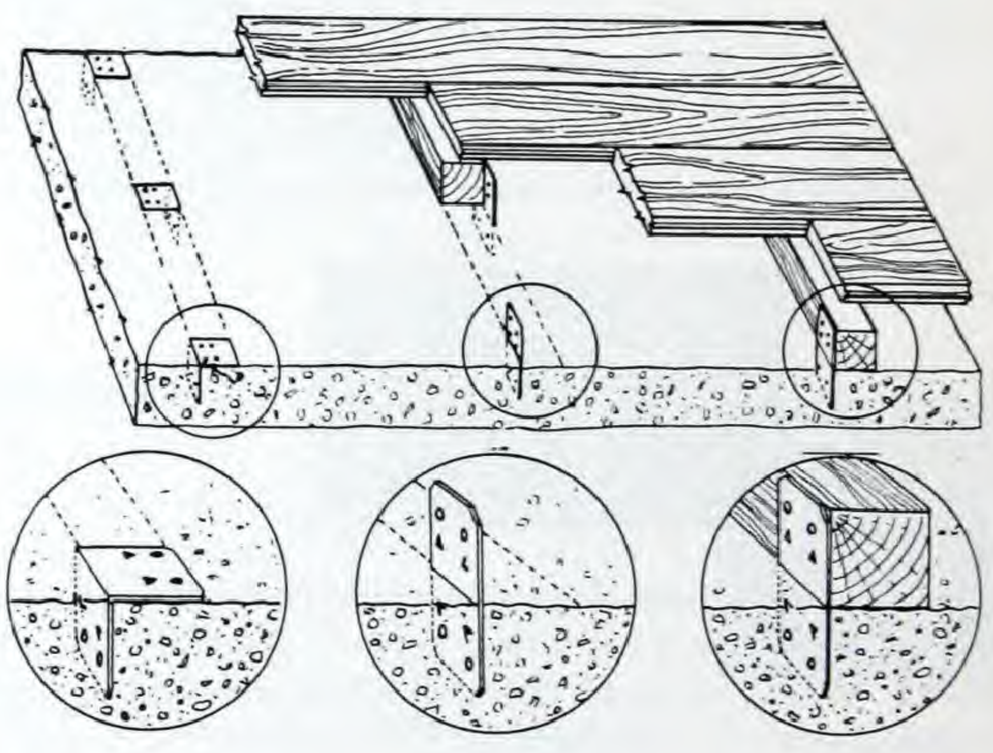
Type B

Single Leg Anchors

The Single Floor Anchor is adaptable for all sizes of wood sleepers and provides an exceptionally strong anchorage. Having but a single leg, they are staggered on alternate sides of the sleeper. The "V" nailing prongs assist materially in installing the sleepers, as they hold the sleeper temporarily while being levelled. The expansion nail holes grip the nail and bite into the sleeper to hold it rigidly.

Specification

All types made of 20 gauge hot galvanized steel 1½" wide. Type "A" Anchor is made in one size only to take 2 x 4 sleepers. Type "B" made in three sizes, 2 x 2, 2 x 3 and 2 x 4. Single Leg Anchor in one size only.



Quantities Required

With sleepers placed on 16" centres
Double Anchors spaced 18" apart—500 per 1,000 sq. ft.
Double Anchors spaced 24" apart—375 per 1,000 sq. ft.
Single Anchors spaced 12" apart—750 per 1,000 sq. ft.

See templates
on bottom of page 27

Threaded Concrete Inserts

Standard Threaded Insert

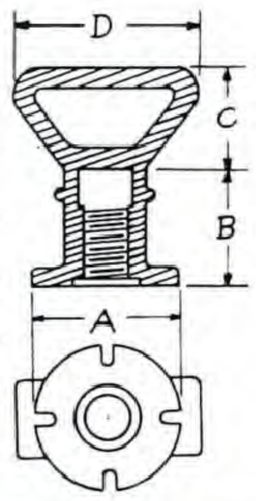
Threaded or "socket" Inserts are largely used for the hanging of suspended ceilings, shaft hangers, motors, plumbing, heating and sprinkler systems, etc. They provide a convenient socket into which a standard machine bolt may be inserted.

This Insert forms a wedge that provides the strongest anchorage and a rod may be inserted through the open head if additional reinforcement is desired. The extra high socket, with an open core above the thread, provides some vertical adjustment. No boring of form lumber is required, as the broad base holds the insert steady when nailed to the forms.

Made in the following sizes: ⅜", ½", ⅝" and ¾".

Dimensions of Threaded Inserts

No.	A	B	C	D
3—⅜"	1¼"	1¾"	1¼"	1"
4—½"	1¼"	1¾"	1¼"	1"
5—⅝"	1½"	2"	1½"	1⅛"
6—¾"	1½"	2"	1½"	1⅛"

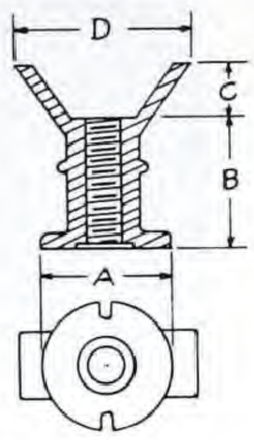


MADE OF MALLEABLE IRON

Duplex Threaded Insert

The Duplex Insert is designed with a secondary threading chamber which will be found most useful and convenient in the installation of "datum" rods. It also provides for additional anchorage to the floor above or to a plate washer imbedded in the concrete, for wider distribution of the load when inserts are installed in a light slab.

For general purposes only the lower chamber of the Duplex Insert is threaded, but to meet special conditions it may be furnished with both an upper and lower thread.

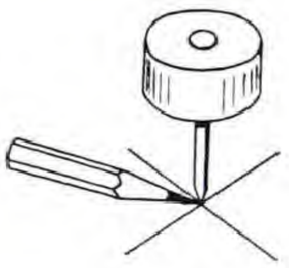


Made in two sizes only: ½" and ⅝".

A — 1¾" B — 1⅝" C — ¾" D — 2½"

Features

Both Inserts are provided with a recess in the base into which a 1" cardboard disc may be inserted. These discs prevent seepage of concrete into the thread and are also used to cover up inserts installed for future use.

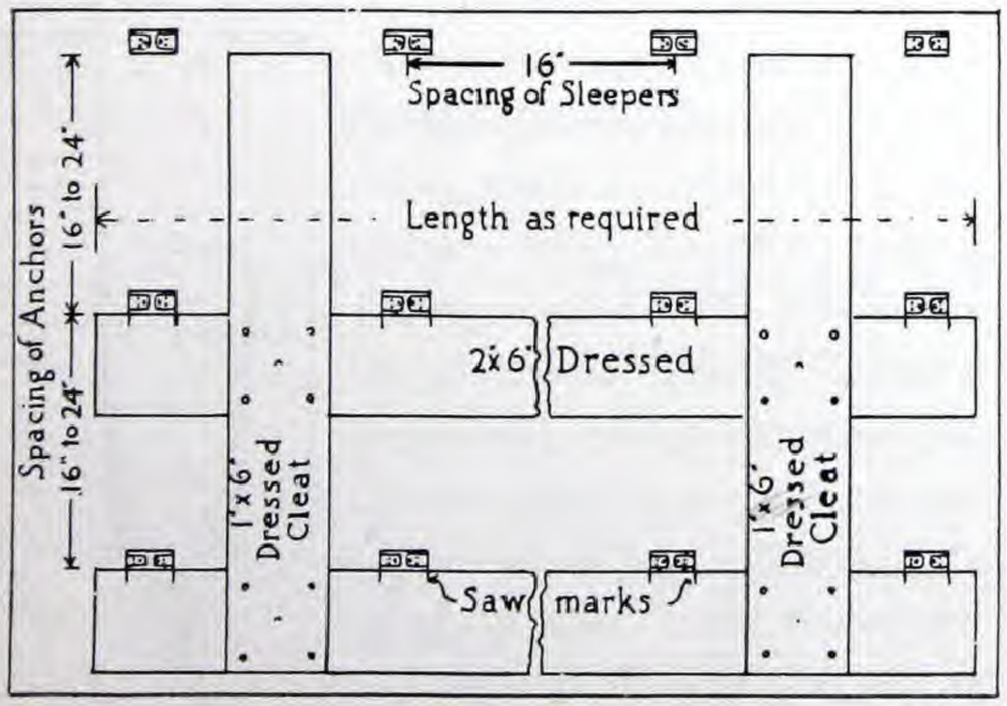


Also available are wood plugs for positive accuracy in installation of inserts. Nailed to the form in the required pattern, they provide **pencil point alignment** of your inserts.

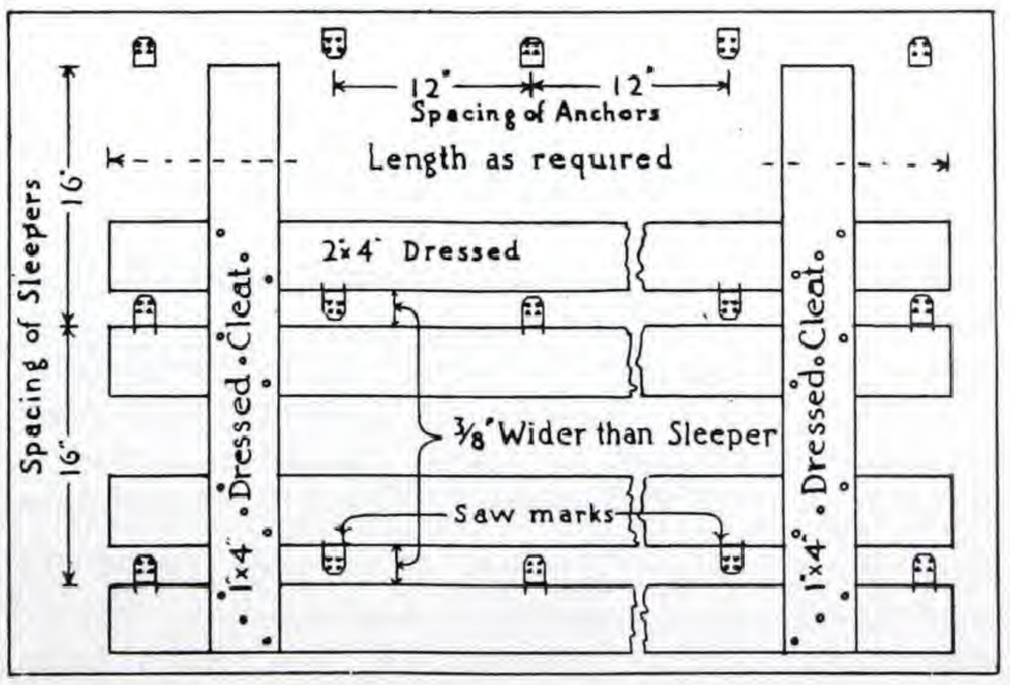
Templates for Setting Floor Anchors

(Illustrated on Page 26)

Double Leg



Single Leg

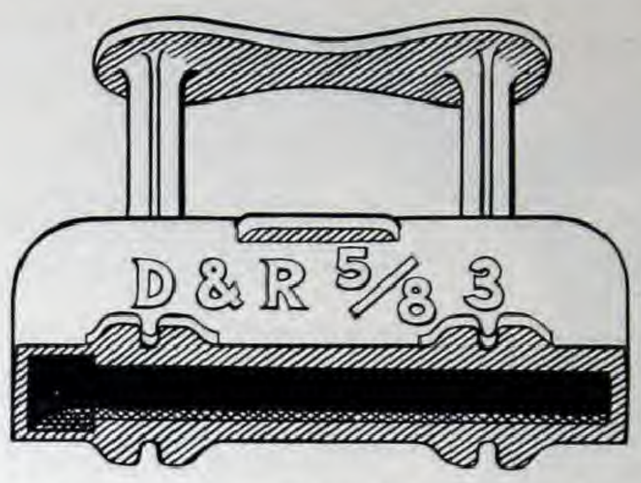


Adjustable Concrete Inserts

The "D & R" Adjustable Insert is a sturdy one-piece MALLEABLE IRON casting. Malleable iron possesses advantages in design, strength and reliability that are beyond the limitations of steel or cast iron.

The keyhole slot provides adjustment and permits the bolt head or nut to be inserted or removed instantly. The base is broad and flat, with two substantial nailing lugs, and the height insures ample anchorage in the concrete. A rod may be placed through the open head for additional reinforcement of the concrete if desired.

Special Adjustable Insert



Occasionally in certain installations an insert having extra adjustment is called for.

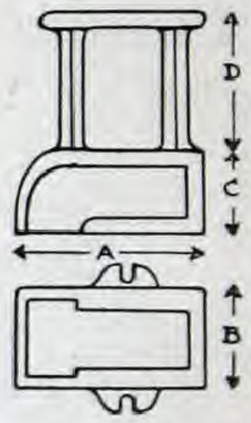
This new "D & R" Insert is 4⅜" long, giving a full 3" of adjustment for the bolt. It is 3" high.

Takes the head of a ⅝" machine bolt.

ALL "D & R" INSERTS IN BOTH ADJUSTABLE AND THREADED TYPES ARE MADE OF MALLEABLE IRON.

Dimensions of Adjustable Inserts

No. 1 for ⅜" and ½" Bolts			
A	B	C	D
2½"	1⅛"	⅞"	1⅝"
No. 2 for ⅝" and ¾" Bolts			
A	B	C	D
2⅞"	1⅝"	1¼"	2¼"

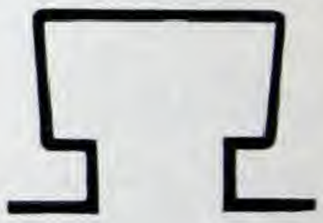


Continuous Slotted Insert

While the regular Adjustable Insert meets all normal requirements, sometimes an Engineer must provide continuous adjustment for certain industrial installations. The "D & R" Continuous Slotted Insert meets this requirement and has been extensively used in mining, paper mill and general industrial construction.

The Slotted Insert is made of 14 gauge steel, designed to take the head of a ¾" machine bolt. Special washers are available to permit use of ½" and ⅝" bolts.

Made in lengths of 1'0" up to 18'0", with one bolt opening in centre as illustrated, or additional openings at each end if required. Anchors are made of ⅛" x 1" steel and are adjustable along the length of insert, permitting additional anchors to be placed at any desired point. Average spacing of anchors is 1'0" centre to centre. End caps may be removed to allow inserts to be installed end to end for a continuous run, and a loop anchor may straddle the joint.



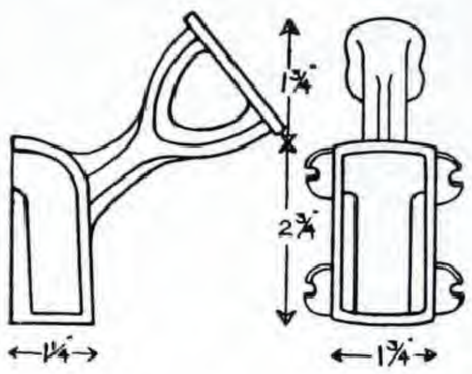
Adjustable Lintel Anchors

(Patented)

The "D & R" Lintel Anchor is a special angle Insert, for the anchorage of shelf angles used to carry brick or stone facing in concrete structures, or in steel structures fireproofed with concrete. It has been used during a period of twenty-five years on many prominent structures throughout Canada and eliminates much of the detail and difficulty usually encountered in the accurate fitting and installation of shelf angles.

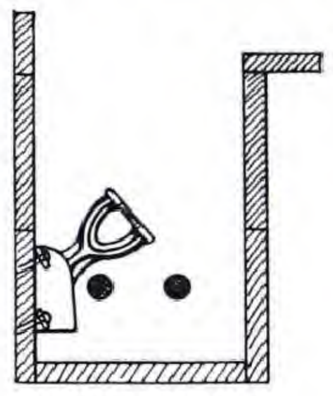
The "D&R" Lintel Anchor is of substantial MALLEABLE IRON construction and it is designed to carry the load eccentrically, as the weight imposed exerts both an *outward* and *downward* pull on the angle. No boring of forms is required, as the head of a standard ¾" machine bolt is inserted in the keyhole slot as the angle is installed. The tapered shoulder of the anchor acts as a wedge to prevent slippage. Thus with holes horizontally slotted in the shelf angles, adjustment in both directions is secured.

The use of "D & R" Lintel Anchors offers many advantages over the bent bolt commonly used, not only in convenience and accuracy, but in cost also. Lintel Anchors are installed flush with the wall, so you have no projecting bolts to become rusted and battered up, and no ends to cut off. A bolt of exactly the right length is inserted as the shelf angle is installed. This prevents damage to stone facing, as the angles are installed *after* the wall reaches the level, permitting the stone to be lowered directly on to the wall and the angle to be placed *over the stone* instead of the stone being fitted under the angle.



DIMENSIONS OF LINTEL ANCHORS.

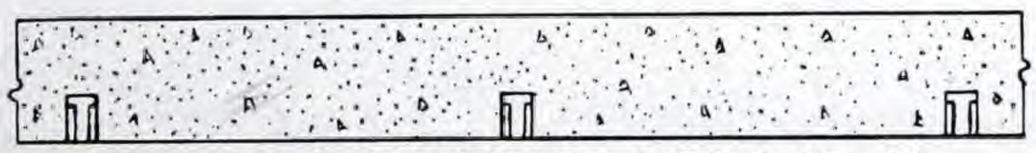
Installation. Lintel Anchors are usually spaced on approximately 4′ 0″ centres to carry the ordinary 4″ veneer, and proportionately closer for thicker wall facings and greater projections. They are generally installed about 1″ above the beam bottom, but may be installed at any level. Even if placed at bottom of beam, the design provides ample anchorage above the usual level of reinforcing. The open loop permits an extra bar to be placed through the head, if desired for additional anchorage.



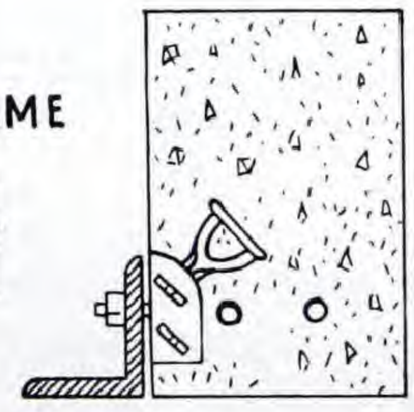
STANDARD MACHINE BOLTS ARE USED WITH "D & R" LINTEL ANCHORS. NO SPECIAL BOLTS REQUIRED.

D&R LINTEL ANCHORS

FOR FIREPROOFED STEEL OR CONCRETE FRAME



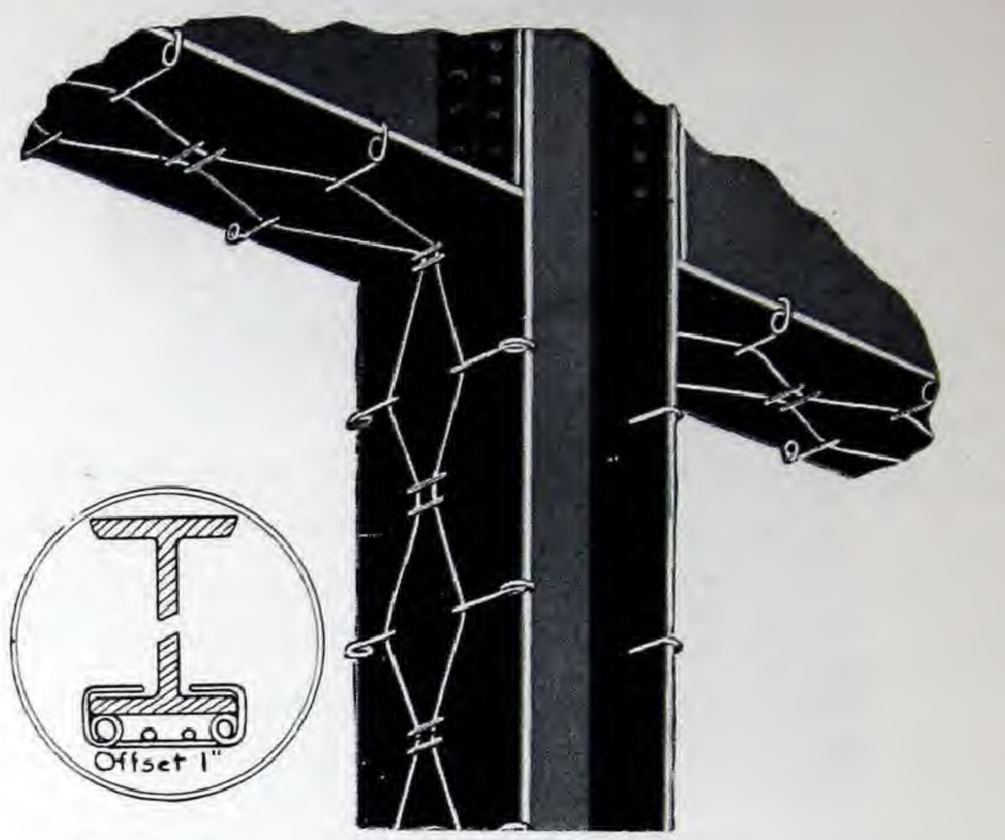
SPACE ANCHORS APPROXIMATELY 4'0" o/c

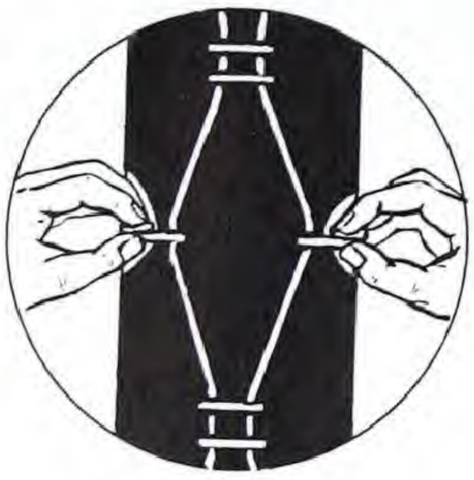


D&R Expansible Reed Clips D&R

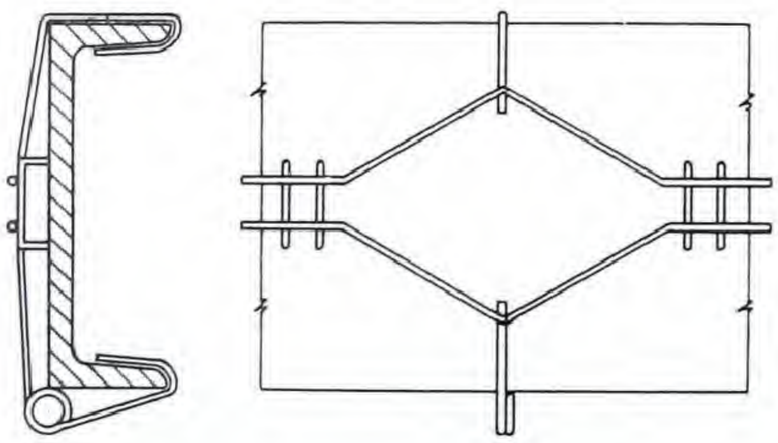
SOFFIT REINFORCEMENT FOR BEAMS, GIRDERS AND COLUMNS

Reed Clips offer complete and economical protection against soffit failures in structural steel buildings fireproofed with concrete. This method has become increasingly popular in all sections of the Country. The cost of the clips per lineal foot of beam is about the same as wire mesh or expanded metal, but the placing cost is only about one-half as much. The expansible feature also saves the sorting of many sizes, prevents waste and keeps erection costs down to a minimum.





Expansible Reed Clips are made of No. 12 gauge hard galvanized steel wire, electrically welded at every joint. Two longitudinal wires, with expansible loops every 12″, provide adequate reinforcement and the open construction prevents voids.



Specification

Expansible Reed Clip is made in three sizes, as follows:

Class "A" is 4″ wide and expands to 12″
Class "B" is 8″ wide and expands to 16″
Class "C" is 12″ wide and expands to 20″

All styles are 5′ 0″ long, with clips on 12″ centres.

Additional Reinforcement as Required

The design of the Expansible Clip is such that as it is expanded to fit wider flanges, it shortens in length, thus providing additional reinforcement per lineal foot.

Channel Clips

Reed Clips for channels have two longitudinal wires, with loop clips on 12″ centres. They have projections of 6″ on one side and 18″ on the other.

Reed Clip Expansion Chart

Each Reed Clip has a possible expansion of 8″, but as the clip is expanded to fit a wider flange its length is reduced.

In order to estimate the actual quantity of Reed Clip required for a given length of beam, the following table will be found a reliable guide:

Amount of Expansion	1″	2″	3″	4″	5″	6″
Add to Lineal Ft. of Beam	2%	4%	7%	11%	16%	25%

Example:—100 Lin. Ft. 7″ flange, using Class "A" Clip, would require 107 Lin. Ft. of Reed Clip.

100 Lin. Ft. 9″ flange, using Class "A" Clip, would require 116 Lin. Ft. of Reed Clip.

D&R Wire Reinforcing Ties D&R

For tying
Reinforcing steel,
Bags, Bundles,
Snow Fences, etc.

Put up in
Standard Rolls
5,000
of one size.

The Wire Loop Tie is the fastest and most economical tie on the market. Contractors and steel setters find that their workmen can make two or three perfect ties in the time required to make one tie with ordinary wire and pliers. Wire Loop Ties are also used extensively by foundries for shipment of light castings in bags; for tying snow fences, etc. Made of 16 gauge annealed wire for reinforcing steel and heavy bags; 17 and 18 gauge for light bags; 14 gauge for snow fences.

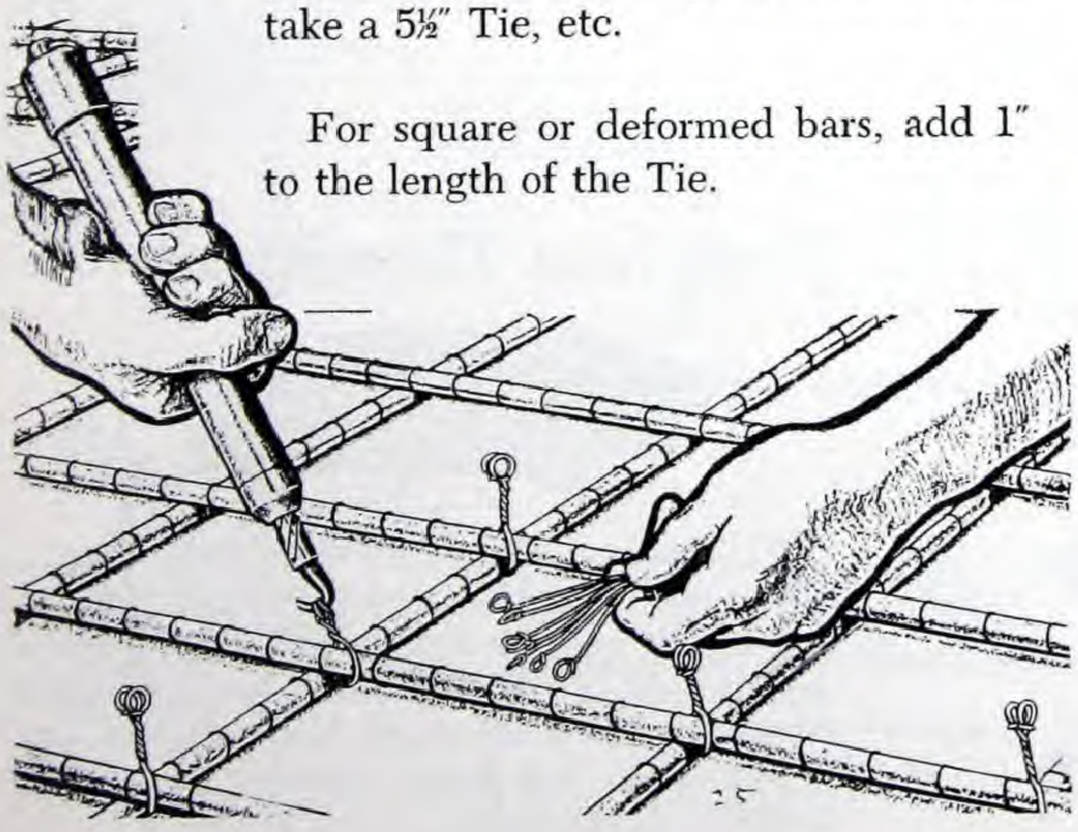
Application

In using Wire Loop Ties, the wire is passed around the steel or other object to be tied, the two loop ends engaged in the hook of the tying tool, and with a couple of twists of the wrist a perfect, non-slipping tie is secured.

Ready Reckoner

To determine the length of tie required for reinforcing steel, multiply by four the combined diameter of the two bars to be tied and add ½″. Thus, two ½″ bars require a Tie 4½″ long; ½″ and ¾″ bars take a 5½″ Tie, etc.

For square or deformed bars, add 1″ to the length of the Tie.



Tying Tools

The Pistol Grip Tool is the convenient, inexpensive hand tool that most workmen like, because it fits the hand and is small enough to slip into the pocket when not in use. Wood handle.

The Spring Return Tool is all-metal construction, with spiral mechanism which ties with a straight pull. A heavy spring returns the hook immediately it is released.

Wire Bag Ties. Furnished in all lengths, and in 16, 17 and 18 gauge wire, annealed, galvanized or coppered.

Snow Fence Ties. A 14 Gauge Tie 10″ long is generally used for this purpose. You will find Wire Loop Ties a great convenience in erecting snow fences. A ready made tie and convenient tying tool give you a strong, secure tie in the first place which frequently saves damage to the fence and the inconvenience of making repairs in mid-winter weather.

"D & R" Spring Wire Bar Tie. A special Tie of high carbon spring steel used in the assembly of mats for concrete road reinforcement, and for tying horizontal and vertical bars in reservoirs, piers, retaining walls and other concrete structures.

Wooster Treads and Nosings

Safety
IN EVERY DIRECTION

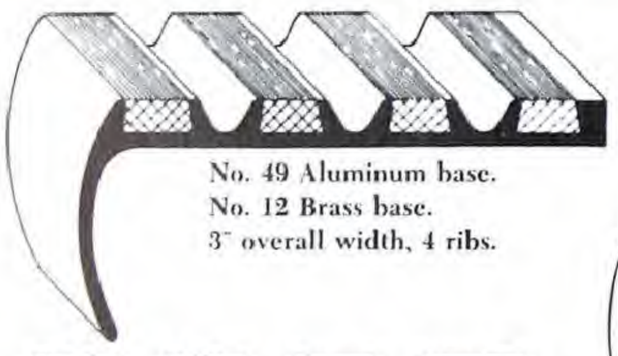
Wooster Grooved Type Safety Treads and Combination Treads and Nosings combine *safety* under all walking conditions with the smartest appearance. Whether you require over-all coverage for your steps, or just a narrow tread with ornamental nosing, you will find something in the Wooster line to meet all requirements. The gleaming beauty of white alloy or the polished, matte or satin finish of yellow brass enables the Architect to build safety into stairs without the sacrifice of appearance.

Wooster Treads are produced in either Yellow Brass or White Alloy (hardened aluminum base) in the variety of sections illustrated. The square back sections are designed primarily for installation in concrete, or to be backed up with linoleum, mastic or other stair covering. The curved back sections may be installed with or without backing. Any curved back section may be combined with one of the flat sections to provide a tread of greater width.

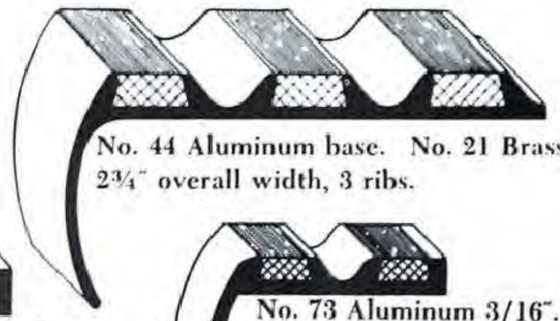
Standard Wooster Sections

These sections available in either ALUMINUM OR BRASS

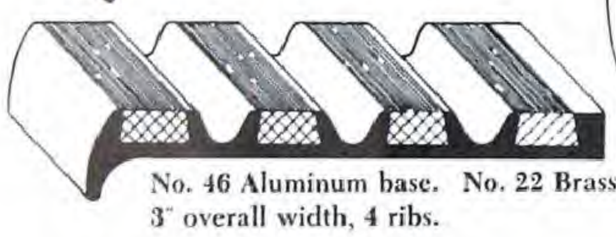
All sections this page ¼" thick unless otherwise indicated.
Lip Nosings ¼" below tread.
Long Nosings 1" below tread.
Abrasive or Lead Anti-slip filler



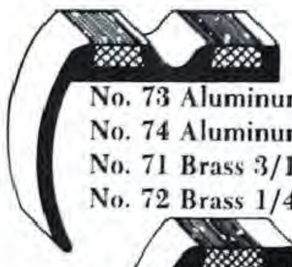
No. 49 Aluminum base.
No. 12 Brass base.
3" overall width, 4 ribs.



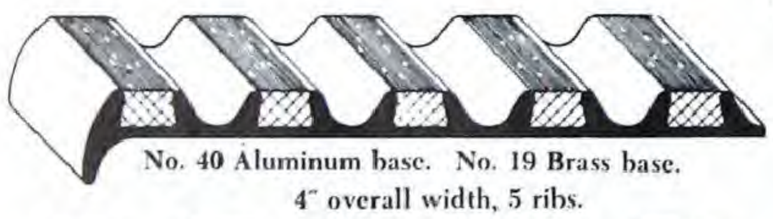
No. 44 Aluminum base. No. 21 Brass base.
2¾" overall width, 3 ribs.



No. 46 Aluminum base. No. 22 Brass base.
3" overall width, 4 ribs.

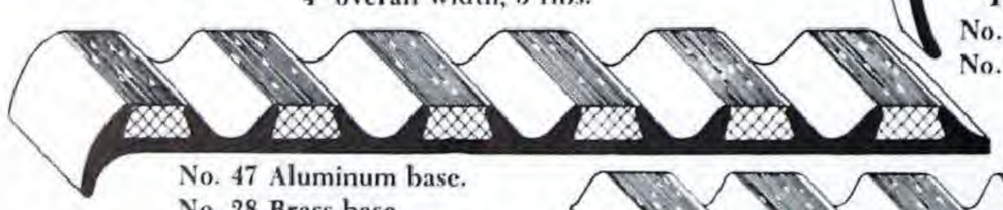


No. 73 Aluminum 3/16".
No. 74 Aluminum 1/4".
No. 71 Brass 3/16".
No. 72 Brass 1/4".



No. 40 Aluminum base. No. 19 Brass base.
4" overall width, 5 ribs.

No. 63 Aluminum 3/16".
No. 64 Aluminum 1/4".
No. 61 Brass 3/16".
No. 62 Brass 1/4".



No. 47 Aluminum base.
No. 28 Brass base.
5¼" overall width, 6 ribs.

No. 43 Aluminum base.
No. 27 Brass base.
3" overall width, 4 ribs.

No. 41 Aluminum base. No. 25 Brass base. 4" overall width, 5 ribs.

No. 42 Aluminum base. No. 26 Brass base. 6" overall width, 8 ribs.

Metal Door Thresholds

— brass, aluminum, steel.

Fluted-top Thresholds for use with exterior and interior doors—available in brass, aluminum and steel in the following standard sections:

STEEL			BRASS		ALUMINUM	
Width	Height	No.	Height	No.	Height	No.
4"	½"	370	½"	311	½"	380
5"			½"	313	½"	381
5½"	⅝"	371				
6"			½"	314	½"	382
7"	⅝"	372				

Cast Iron Thresholds

The section illustrated is an inexpensive, plain cast iron threshold, suitable for interior and exterior doors, and made in one width only, namely 4¼". May be had in any length up to 6' 0", with holes drilled and countersunk for wood screws, or special drilling as required.

Wooster and D & R Treads

Combination Treads

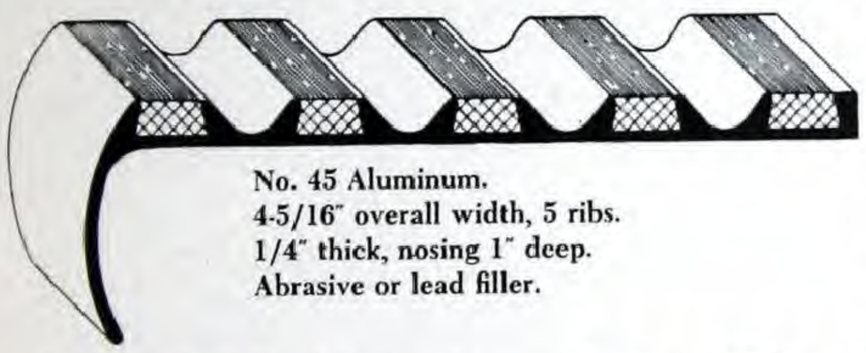
No. 73 No. M-90 No. M-95

Three popular Wooster Sections.
See others illustrated.

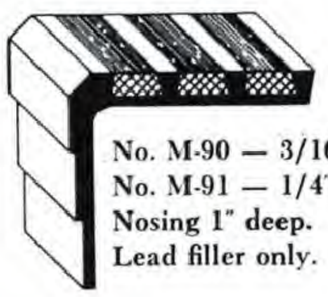
Wooster Combination Treads and Nosings are ultra-modern in design and convey an impression of up-to-date smartness that contributes much to their decorative value. But they are not designed primarily as a decoration. They combine with their sleek, modern attractiveness a high degree of **safety** that is so essential wherever installed in residences, stores, offices, restaurants, etc. With Wooster Combination Treads and Nosings you get a combination of safety and beauty.

Standard Wooster Sections

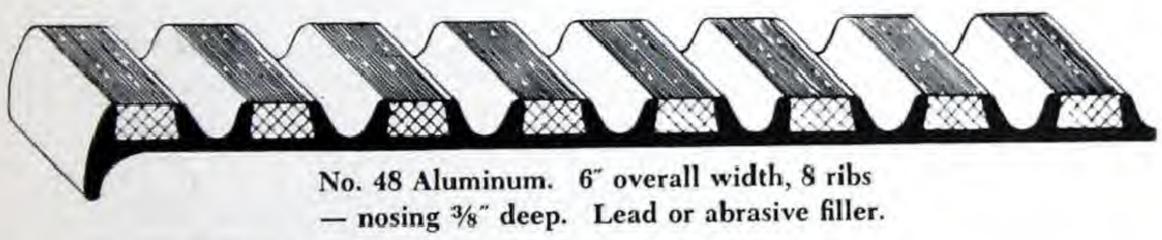
These sections available in ALUMINUM BASE ONLY



No. 45 Aluminum.
4-5/16" overall width, 5 ribs.
1/4" thick, nosing 1" deep.
Abrasive or lead filler.

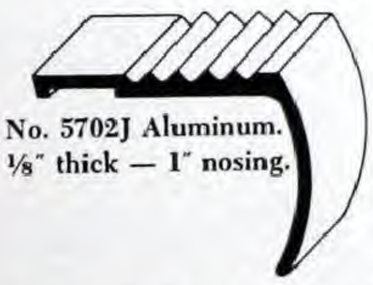


No. M-90 — 3/16".
No. M-91 — 1/4".
Nosing 1" deep.
Lead filler only.

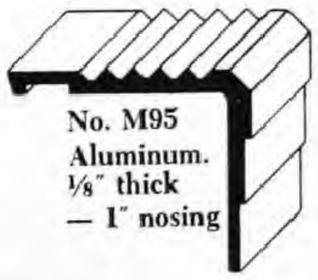


No. 48 Aluminum. 6" overall width, 8 ribs
— nosing 3/8" deep. Lead or abrasive filler.

No. 198 Aluminum.
3/16" thick,
nosing 1½" deep.
Lead filler only.

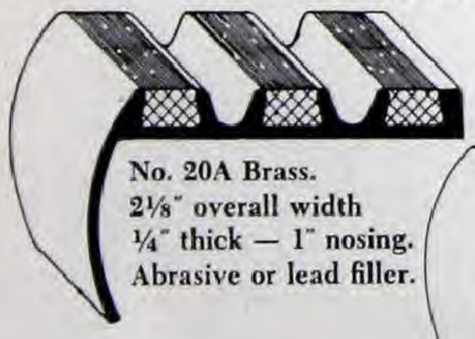


No. 5702J Aluminum.
⅛" thick — 1" nosing.

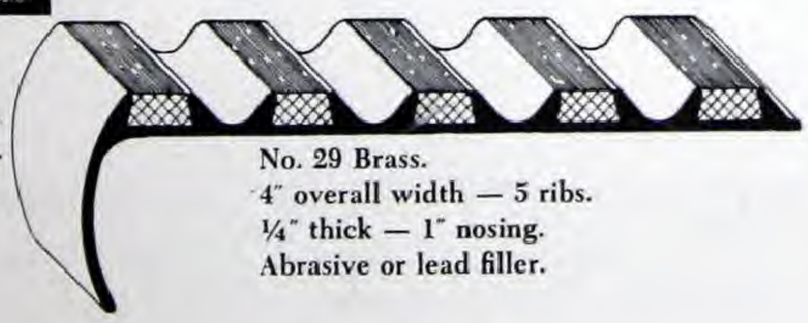


No. M95
Aluminum.
⅛" thick
— 1" nosing

These sections available in BRASS BASE ONLY



No. 20A Brass.
2⅛" overall width
¼" thick — 1" nosing.
Abrasive or lead filler.



No. 29 Brass.
4" overall width — 5 ribs.
¼" thick — 1" nosing.
Abrasive or lead filler.

D & R "Ever-Safe" Treads

Section 325 — 4 ribs, 3¼" wide.

Section 250 — 3 ribs, 2½" wide.

Available in the two sections illustrated, D & R "Ever-Safe" Treads are specially designed for use with either the standard Carborundum Abrasive Filler or the new Rubber Composition Filler.

The Aluminum Base is a tough, hardened alloy that will give many years of service, with little evidence of wear.

On exterior stairs — or interior stairs where oil or grease may be present — we recommend the carborundum abrasive filler, as the gritty surface retains its anti-slip properties under almost all conditions of service. In other installations, either abrasive or rubber will give equal satisfaction.

Rubber-Filled Treads

are particularly desirable in stores, restaurants, offices, schools, public buildings, hotels, etc., where fine appearance and safety are both essential.

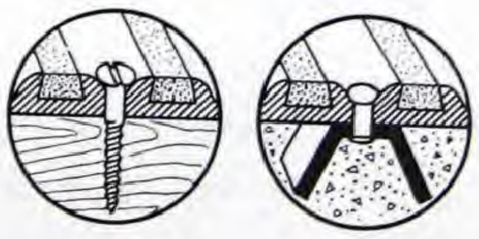
The extruded rubber inserts are always true to size and present a clean-cut appearance. The inserts are slightly raised above the aluminum base, so the foot is always treading on rubber instead of metal. This results in extreme quiet and, combined with the soft resiliency of the rubber, it provides a *comfortable* tread that imparts a greater feeling of security.

The black line of the rubber against the aluminum background is an added safety feature, as it draws attention to the edge of the step.

Furnished in lengths up to 20 ft.

Installation.

Treads are furnished with either screw holes for installation over wood, and for repair jobs, or with anchors for setting in new concrete.



D&R Wooster Abrasive-Cast Treads D&R

Ferrogrit — Bronzogrit — Alumogrit

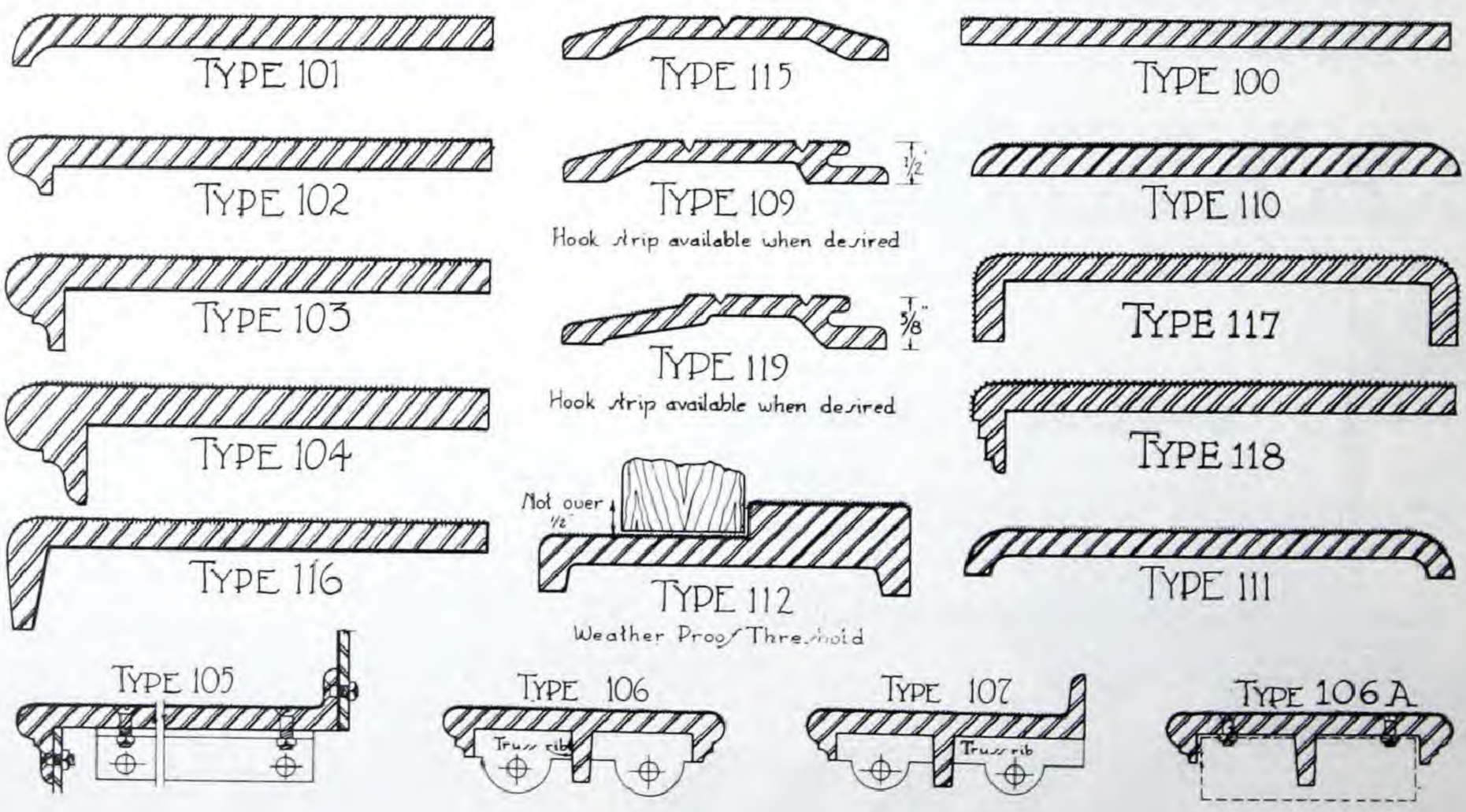
The specification and use of **Safety Treads** – whether the abrasive-cast or grooved type – can always be justified from the standpoint of **SAFETY AND ECONOMY.** At no other point in a building is there such traffic congestion as on stairs, ramps and elevators, and that is where most accidents occur. The possibility of accident is ever-present, but the fear and danger of accident can be reduced to a minimum by always equipping buildings with approved **Safety Treads** at the points where accidents **might** occur.

WOOSTER FERROGRIT is the finest iron abrasive tread produced. By the patented Wooster process grains of the hardest and toughest abrasive grit known are deeply impregnated into the cast iron base, combining maximum safety with durability.

WOOSTER BRONZOGRIT AND ALUMOGRIT have this same hard-wearing abrasive grit cast into a bronze or aluminum base, giving you an equally safe abrasive-cast surface, with the finer appearance imparted by the lighter coloured base which blends with the finest modern stair treatment.

All types are available in the standard sections illustrated below, and in three different patterns – cross-hatched, plain or fluted surface. Furnished with steel anchors for installation in concrete; with countersunk holes for installation over wood or other sub-tread; and with suitable provision for attachment to stringers in the self-supporting structural types.

The over-all gritty surface of Abrasive-Cast Treads provides maximum safety wherever moisture, grease or oil may be present, such as entrances to stores and other buildings, outside stairs, restaurants, processing plants, factories, refineries, breweries, etc.



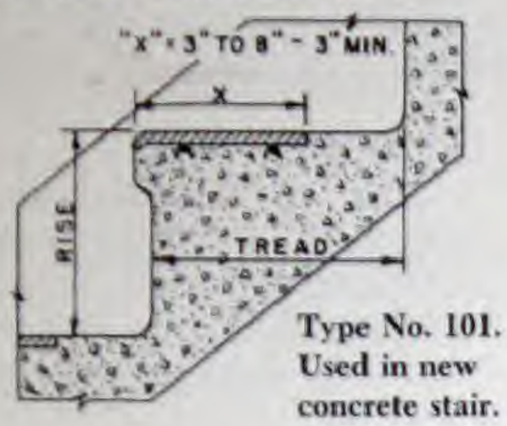
STANDARD SECTIONS OF ABRASIVE-CAST TREADS AND THRESHOLDS

Literature illustrating the application of these treads, with details, schedule of standard practice and complete description, furnished upon request.

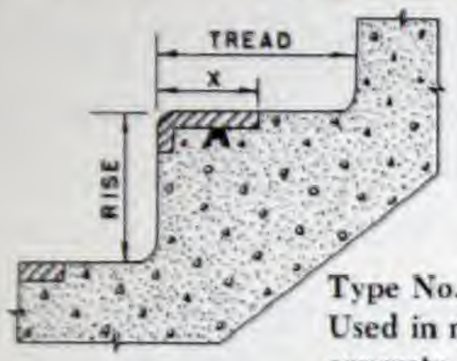
D&R Nosing and Structural Treads D&R

Nosing Treads

for new concrete . . .

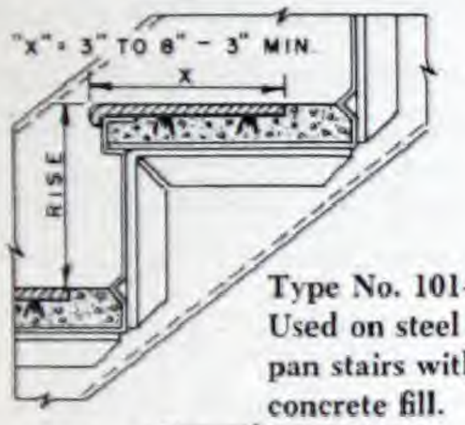


Type No. 101. Used in new concrete stair.

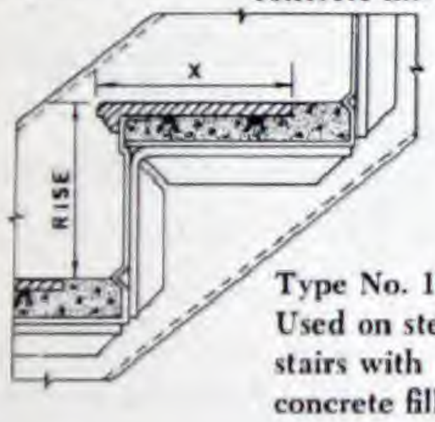


Type No. 116. Used in new concrete stair.

for steel pan . . .



Type No. 101-SP. Used on steel pan stairs with concrete fill.



Type No. 103. Used on steel pan stairs with concrete fill.

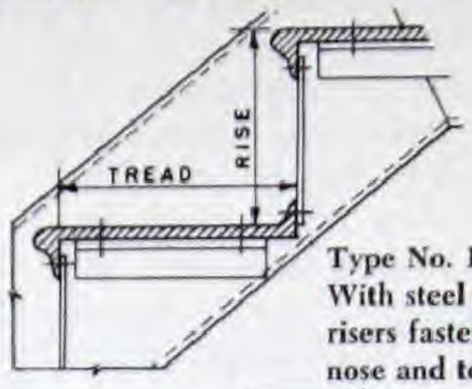
WOOSTER offers you a complete line of safety treads, thresholds, nosings, platforms, floor plates, trench covers, in all types and sizes. The superior quality of Wooster products has been proven by the many years of satisfactory service they have given to users, as well as by their recognition and approval by leading architectural firms, Government agencies and industrial corporations.

Safety. Wooster safety treads are designed to lessen slipping hazards. Their anti-slip characteristics have been carefully developed over more than 30 years of experience in making over 100,000 installations.

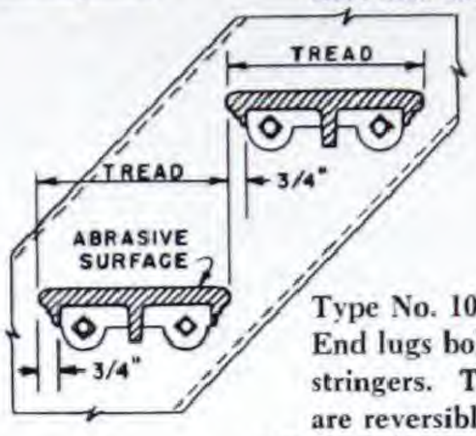
Appearance. Wooster treads retain their fine appearance indefinitely. They provide a durable, attractive walking surface for stairs and all other walkways.

Economy. The wear-resistant, anti-slip properties of Wooster safety treads endure for many years. Safety itself is priceless, and in addition, Wooster treads may save the building owner thousands of dollars in damage suits resulting from injuries due to falls.

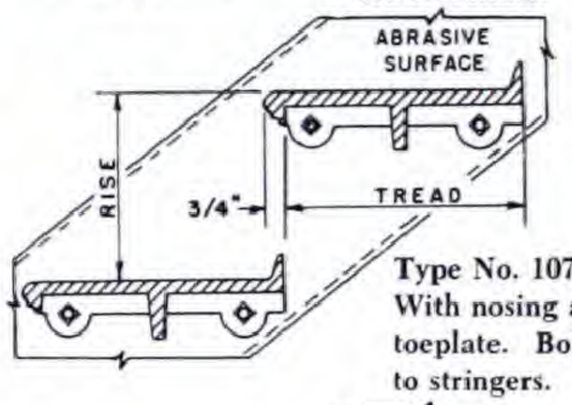
Structural Treads



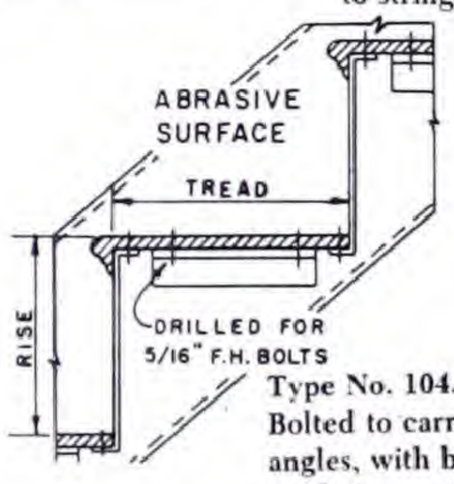
Type No. 105. With steel plate risers fastened to nose and toeplate.



Type No. 106. End lugs bolted to stringers. Treads are reversible.



Type No. 107. With nosing and toeplate. Bolted to stringers.



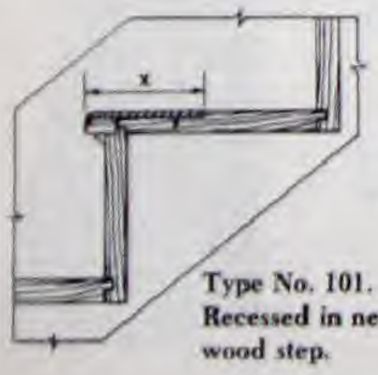
Type No. 104. Bolted to carrier angles, with bent steel risers, attached to treads.

Repairs and Restoration

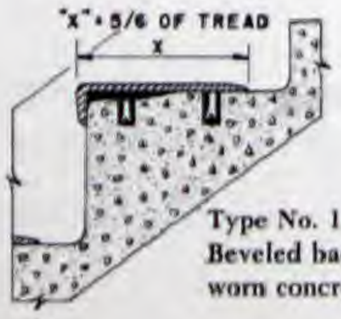
Badly worn and hollowed out treads are a safety hazard. They can be restored and preserved at a fraction of their replacement cost by the installation of safety treads over the worn areas.

The depressed spots should be filled with mastic cement and the worn areas covered with Ferrogrit or one of the grooved type treads; or the tread may be rabbetted to the depth and width of the safety tread in order to retain the original level.

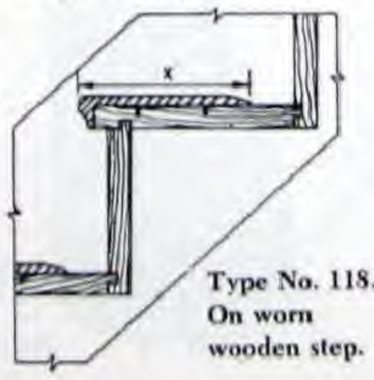
Repairing Worn Steps with Superimposed Treads



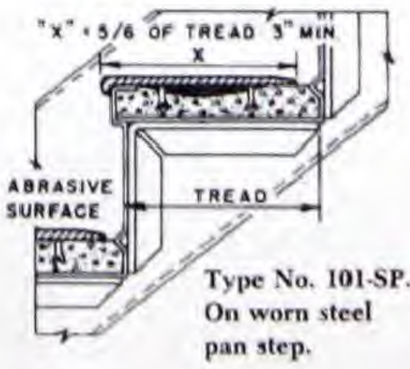
Type No. 101. Recessed in new wood step.



Type No. 116A. Beveled back on worn concrete step.



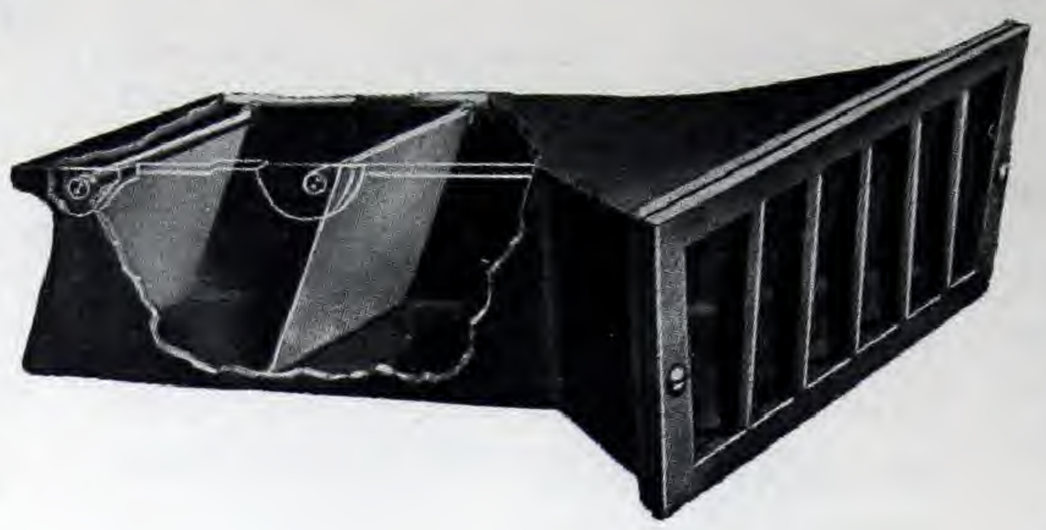
Type No. 118. On worn wooden step.



Type No. 101-SP. On worn steel pan step.

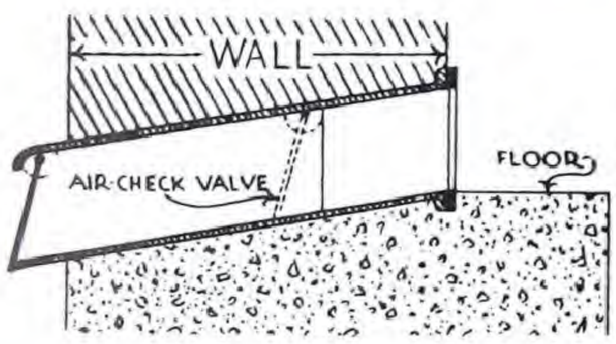
Watertite Scuppers

The installation of Scuppers is recommended by Fire Underwriters in all factories, warehouses, mills, lofts and other industrial buildings. Certain regulations regarding design, construction and installation have been adopted, and "Watertite" Scuppers have for many years been approved as fully complying with these regulations.



Advantages of Scuppers

In case of fire Scuppers prevent water damage and interruption to business which are often much more costly than fire damage. Scuppers reduce this loss to a minimum. The initial cost is slight and this is offset by the saving in insurance, which in many cases has justified their installation in old buildings.



Type "A"

Standard Scupper for General Use

An Emergency Device

Since the Scupper is an emergency device, it must be ready to function at all times — probably many years after it is installed. "Watertite" Scuppers are of heavy cast iron construction, with bronze valves hung in bronze bushings to ensure that they will always open at the slightest pressure. The outside valve is protected by a hood and is not recessed, so it cannot become clogged by birds, mortar, dirt or ice.

Air-Check Valve

All "Watertite" Scuppers may be purchased either with or without the inner air-check valve.

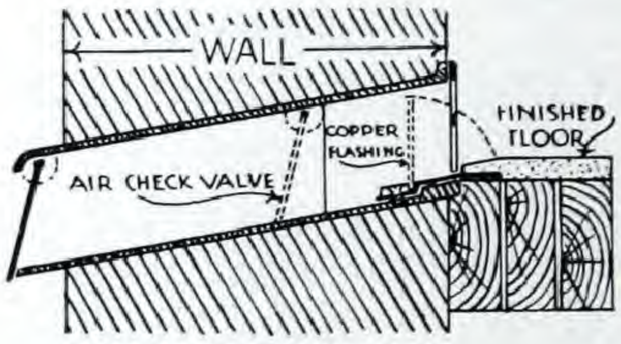
Capacity

The inlet is 12" wide x 3½" high, outlet 4⅝" x 3½". (Underwriter's requirements call for an outlet of not less than 16 sq. in.). The body has a downward pitch of 2" to the foot. The discharge capacity is 100 gallons per minute under 3" head of water, or 60 gallon under a 1" head.

Installation

Scuppers are generally installed in the outside curtain walls. One scupper is recommended to each 500 sq. ft. of floor area in sprinkler-equipped buildings, and one to 750 sq. ft. in other buildings. They should be installed slightly below the floor level.

The Type "B" Scupper is specially designed for buildings of mill construction. The copper flashing overcomes the shrinkage between the floor and wall at a point where it cannot be coved, preventing leakage of water to the floors below.



Type "B"

"Watertite" Scuppers have been approved by Underwriters in Canada for forty years.

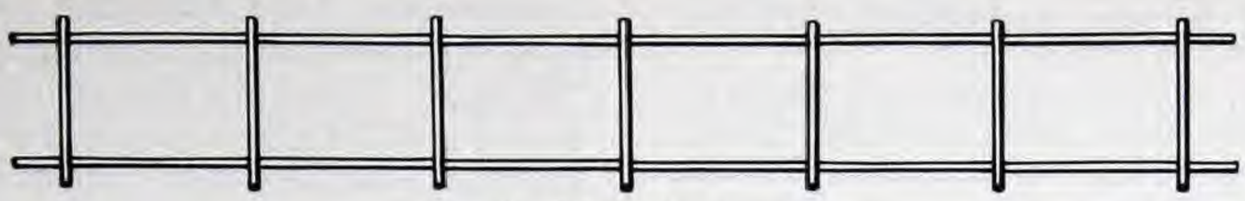
Corner Wheel Guard

Protects door openings and corners of building from damage by truck wheels. These heavy cast iron guards give protection without reducing effective width of opening. Height 30". Projection 6". Weight approx. 85 lb. 2 Anchor Bolts ½" x 8" furnished.

Jamb Wheel Guard

Bolted to inside of door openings in public garages, warehouses, transport and freight terminals, service stations, etc., for protection of jambs. Height 22". Projection 8". Weight approx. 45 lb. Furnished complete with two ½" x 8" anchor bolts.

Blox-Lox Masonry Reinforcing



Ladder Type

A new D & R product that has within a short space of time been accepted and used by many leading Architects and Contractors.

Blox-Lox is designed primarily for the reinforcement of straight concrete block construction, but is equally adaptable to concrete block backing with brick face, or to cavity wall construction.

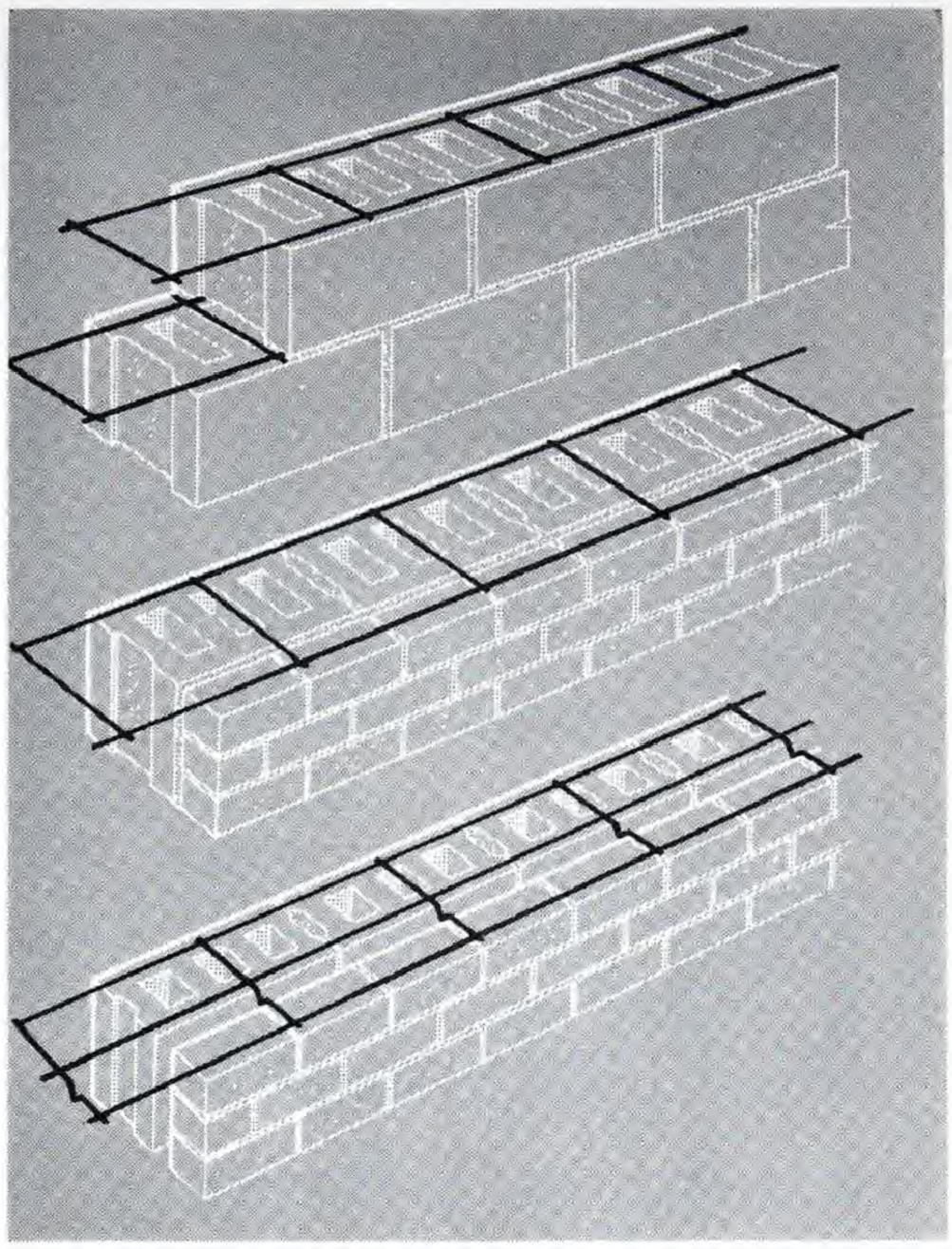
Blox-Lox adds the required reinforcement to prevent the appearance of shrinkage and settlement cracks on the face of the wall. This is particularly important where decoration is applied directly to the masonry surface. It is recommended that Blox-Lox should be installed in one course below and the first two courses above all openings. In other areas Blox-Lox should be installed in alternate courses.

Construction. Standard Blox-Lox is fabricated from No. 9 gauge bright basic wire of 100,000 lb. tensile strength, or (2) mill galvanized wire or (3) galvanized after forming. Also made to order in other gauges. All wires are straight sections, without crimps to straighten out under tension. They are electric welded at every joint into a solid mat that stays straight in handling and lies flat in the wall.

Made for all wall sizes from 4″ to 16″. The width from c. to c. of side rods is 2″ less than wall thickness.

Available in Two Types.

Ladder Type Blox-Lox has cross wires on centres of 12″, 16″ (standard) or other multiple of 4″. Also furnished with cavity drip cross rods that prevent seepage of moisture across the cavity space.



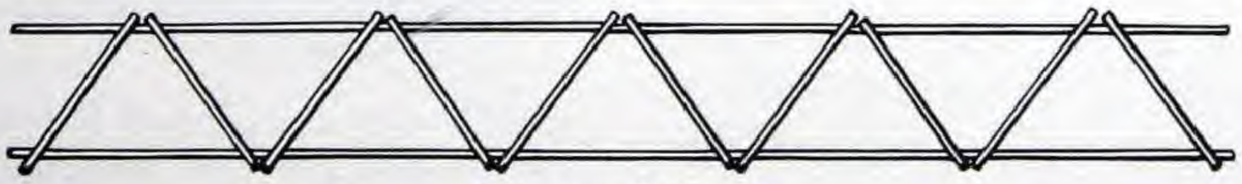
Top — Straight block construction

Centre — Face brick with block backing

Bottom — Cavity wall construction

Diagonal Blox-Lox, with a cross tie every 8″, provides additional strength as if a third longitudinal rod were used.

Corners are readily formed and doubly reinforced by cutting the inside wire and bending the outside wire at right angles.



Diagonal Type

D&R Joist Hangers, Post Caps, Bases D&R

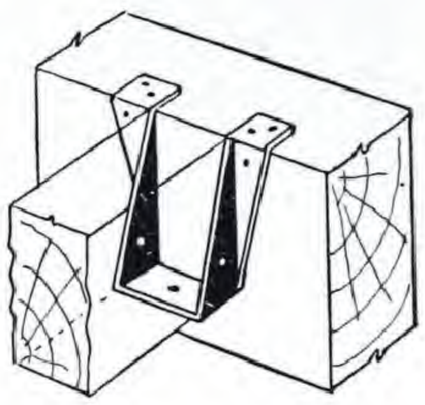
Standard Joist Hangers

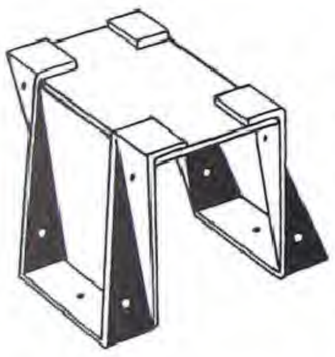
"D & R" Joist Hangers have been used for many years in the better class house construction, stores, apartments, industrial buildings, churches and many other types of buildings, where a substantial and reliable hanger is called for.

They cost a few cents more than some "competitive" hangers, but have up to three times the weight of metal and strength.

Formed from mild steel bars ⅛" x 2" or greater according to the size of joist, and made in sizes from 2" x 6" up to 6" x 12".

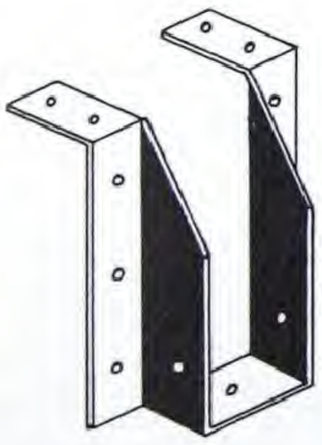
Type "A" Single Hanger. Used for framing a wood joist into a wood beam, and may provide for the joist to frame above, below or level with the top of beam.





Type "B" Two-Way Hanger. Made from two standard Type "A" hangers, with connecting plate, to carry two joists of the same or different sizes directly opposite each other, over a steel beam, or a concrete or masonry wall.

Type "D" Wall Hanger. Made from a Type "A" hanger with added plate turned up or down at the back to anchor into a brick, tile or concrete wall, or to hook over a steel beam.



Van Dorn Beam Hanger. Fabricated from mild steel angles, this hanger meets the heaviest job requirements. The weight of steel varies according to the size of joist or beam to be carried, but in all sizes it has a substantial margin of safety.

Made in all sizes up to 12" x 16" and in various types to meet job conditions.

ALL JOIST HANGERS, POST CAPS AND POST BASES ARE FURNISHED ¼" SMALLER THAN NOMINAL TIMBER SIZES UNLESS OTHERWISE SPECIFIED.

Economy Joist Hangers. Where cost is a determining factor, the new "D & R" Economy Hanger will be found competitive in price and substantially heavier than many of the "light" hangers on the market.

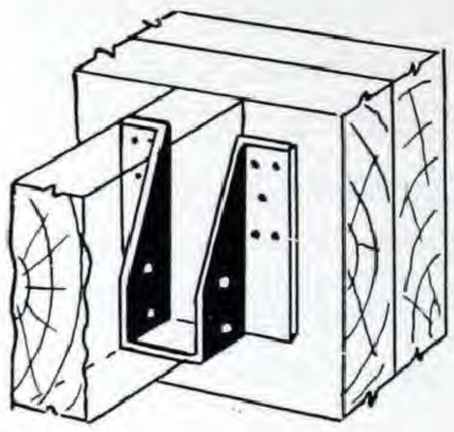
Formed from 18 gauge x 2" galvanized, rolled strip steel – not sheared stock which leaves the edges unprotected.

Made and stocked in single type (1¾" wide) or double type (3½" wide) to take 6", 8", 10" or 12" joists.

Also available on special order to take 1⅝" or 1⅞" joists, in both single and double types.

BECAUSE OF THE VARIATION IN LUMBER SIZES IN DIFFERENT LOCALITIES, PLEASE GIVE US YOUR EXACT LUMBER MEASUREMENTS.

Economy Joist Stirrup. The Joist Stirrup is a combination hanger and anchor that may be installed either BEFORE or AFTER the joist is placed in position.

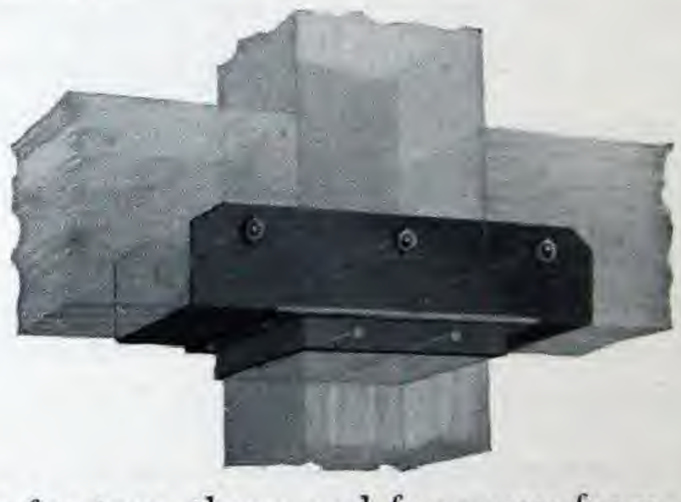


With so much "green" lumber being used, the advantage of this is apparent, as it allows the floor to be laid and the joists to shrink before the stirrups are applied.

Made in single and double types to take 2 x 6 up to 2 x 10, or 4 x 6 to 4 x 8 joists.

17 gauge steel, either plain or galvanized.

Standard Post Caps



Made in all sizes for two, three and four-way framing. Shipped complete with bolts.

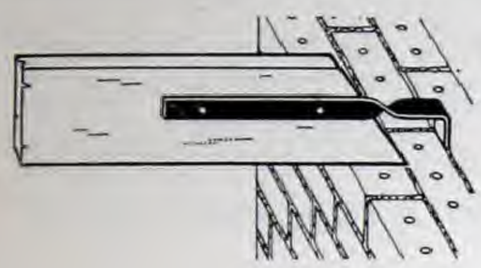
Main channel formed from mild steel plates, in thickness according to size of beam carried. Post socket made of angles and welded to main channel.

Standard Post Bases

provide a combined post base and socket that securely anchors and prevents shifting of the column. Holes in two flanges for anchor bolts.

Joist, Roof and Floor Anchors

"D & R" Anchors, Ties and Clips meet many normal building requirements and are used in various types of buildings. The styles illustrated are the most commonly used and are carried in stock at all times. Special anchors of various types can be furnished upon short notice.



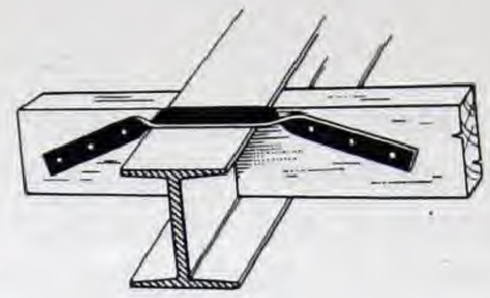
Standard Anchor

Standard lengths —
12", 14", 18" and 22" to bend.

Standard sections —
$\frac{3}{16}$" x 1" $\frac{3}{16}$" x 1¼" ¼" x 1"
¼" x 1¼" $\frac{3}{16}$" x 1½"

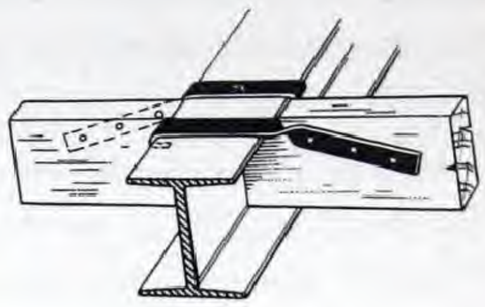
I-Beam Anchors

Made in both single and double types.



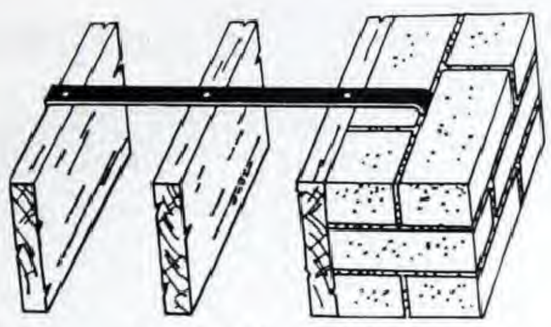
Standard sections —
$\frac{3}{16}$" x 1" $\frac{3}{16}$" x 1¼"
¼" x 1" ¼" x 1¼"
$\frac{3}{16}$" x 1½"

Other sizes made to order. Specify width of flange and size of joist when ordering.

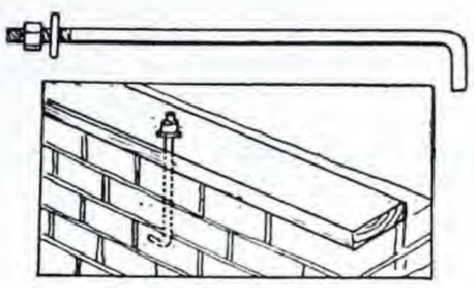


Transverse Anchor

Made in length of 39" to engage three joists on 16" centres; 31" long for joists 12" on centre; plus 2" bend at one end.



Standard sections — $\frac{3}{16}$" x 1¼" ¼" x 1¼" $\frac{3}{16}$" x 1½"



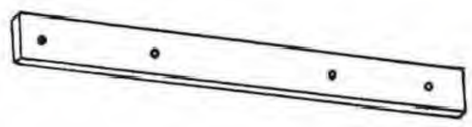
Wall Plate Anchor

Made of ½" or ⅜" round rod, with nut and washer one end, 2" bend other end, in following lengths:

8", 10", 12", 15" and 18" to bend.

Strap Anchor

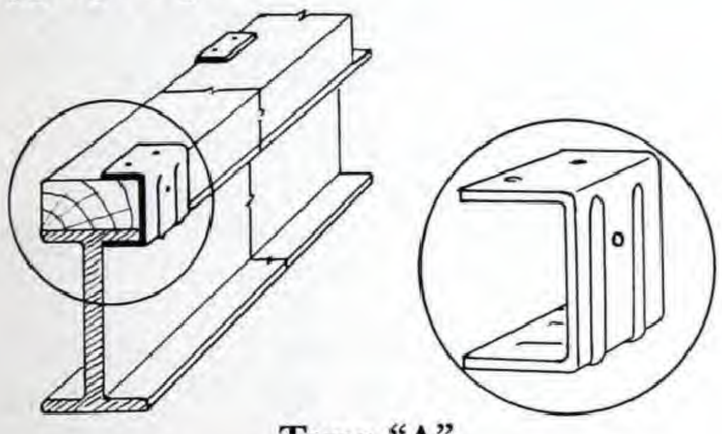
Standard lengths —
18", 24" and 30".



Standard sections —
¼" x 1" ¼" x 1¼"
$\frac{3}{16}$" x 1¼" $\frac{3}{16}$" x 1½"

Other Sizes and Types Made to Order

Roof Lagging Clips

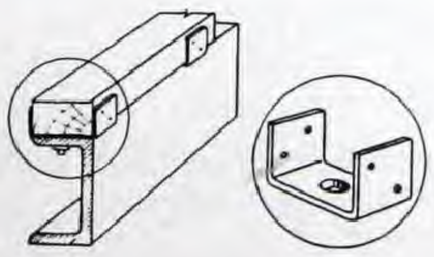


Type "A"

Designed for the anchorage of wood lagging to which roof boards are nailed, These clips effect a substantial saving in both cost and time in the erection of lagging, as they eliminate entirely the necessity of punching holes in the beam flange and in both types they save the measuring, drilling and counterboring of holes in 2 x 4's or 2 x 6's.

Type "A" Beam Clips are 2" wide and 1¾" high to take 2 x 4 or 2 x 6 lagging. Spaced on 24" centres, staggered on alternate sides of beam. The ribs add greatly to the stiffness.

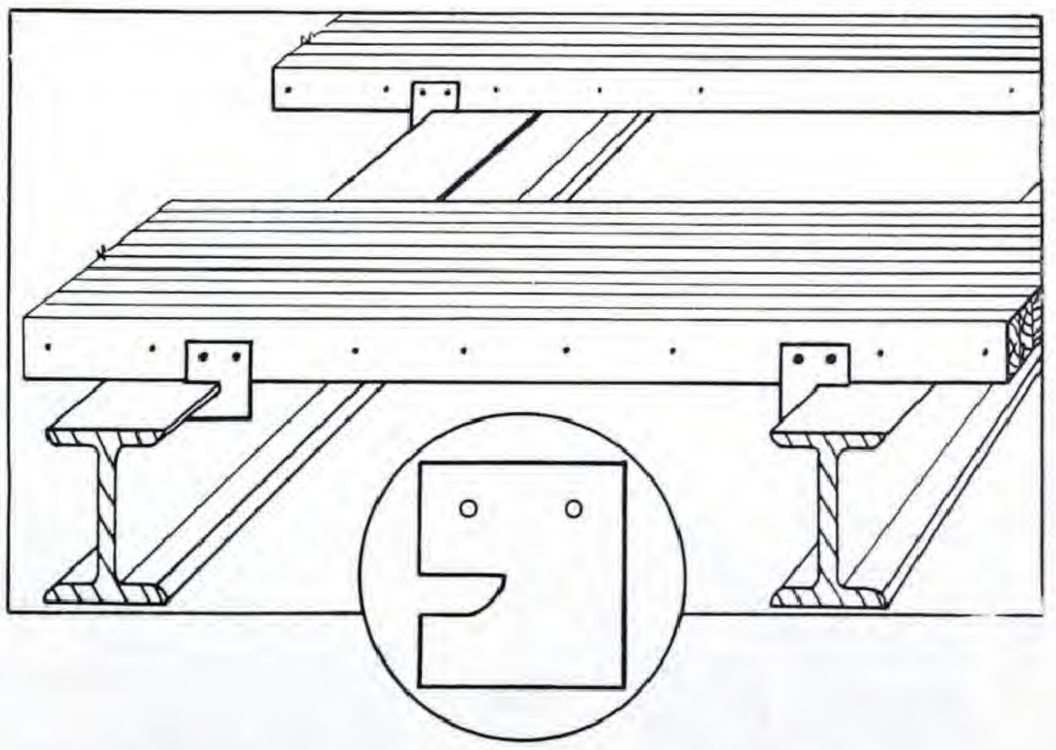
Type "B" Channel Clips are 2" wide and 1¾" high to take 2 x 4 or 2 x 6 lagging. Furnished with csk. head machine bolt and nut. Spaced on 30" centres.



Type "B"

Both types made of 14 gauge galvanized steel.

Laminated Floor Anchor



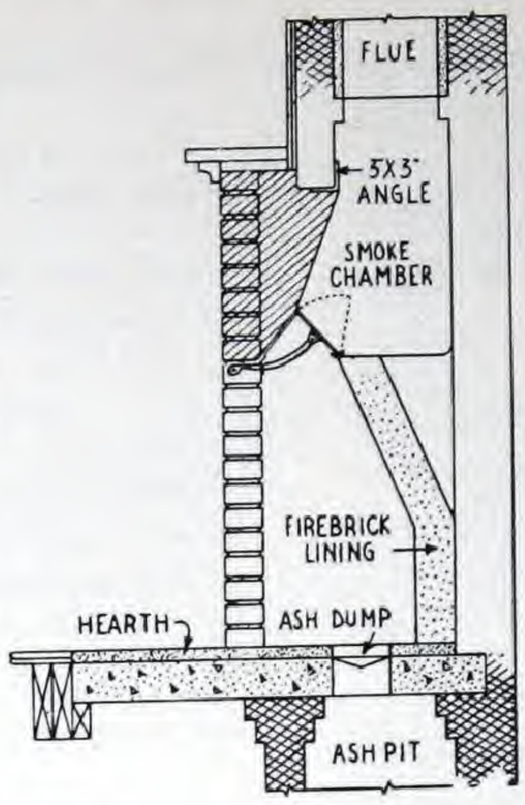
Made of 14 gauge galv. steel, size 4" x 4½" and 6" x 4½".

Used to anchor laminated flooring to structural beams as illustrated. Spaced on approximately 24" centres. Special sizes made to order.

Modern Fireplace Construction

There is a traditional charm in what is commonly called an "old fashioned" fireplace, but which may be as modern as today. No home or summer cottage seems quite complete without an open fireplace and it appeals equally to young and old alike.

Whether you build your fireplace for the heat which it produces or for its friendly atmosphere, you do want to know that it will "work" properly whenever you light it, without puffing smoke out into the room. By following a few simple rules of construction and equipping your fireplace with a time-proven Covert or "D & R" Damper, you may feel certain of satisfactory results. These Dampers have been manufactured by us for forty years and used in every section of the country.



"New Covert" Damper

The frame of the "New Covert" Damper is made of stove-plate cast iron, fitted with an unbreakable steel valve plate which is operated by a simple cadmium plated, wrought iron ratchet control. The front flange carries the masonry over the opening.

Made in following sizes:

Catalog Number	Maximum Width Fireplace Opening	Overall Length	Shipping Weight
524	24″	28″	32 lb.
530	30″	34″	36 lb.
532	32″	36″	40 lb.
536	36″	40″	44 lb.
542	42″	46″	50 lb.
548	48″	52″	63 lb.
554	54″	58″	69 lb.
560	60″	64″	76 lb.

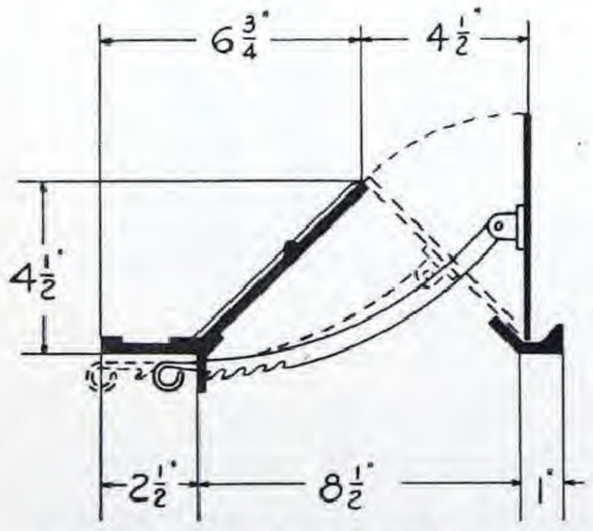
"D & R" Damper

The "D & R" Damper is of similar construction to the Covert but with the front flange omitted. It is particularly designed for fireplaces having a curved arch and for other types of self-supporting mantels. Extensively used by manufacturers of pre-cast stone fireplaces.

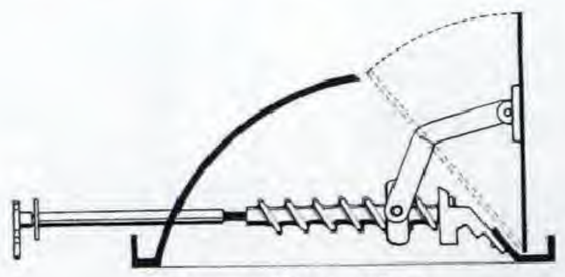
Made in following sizes:

Catalog Number	Maximum Width Fireplace Opening	Overall Length	Shipping Weight
124	24″	27″	22 lb.
130	30″	33″	25 lb.
132	32″	35″	27 lb.
136	36″	39″	31 lb.
142	42″	45″	38 lb.
148	48″	51″	46 lb.
154	54″	57″	50 lb.
160	60″	63″	54 lb.

For intermediate width of opening always use next larger size damper



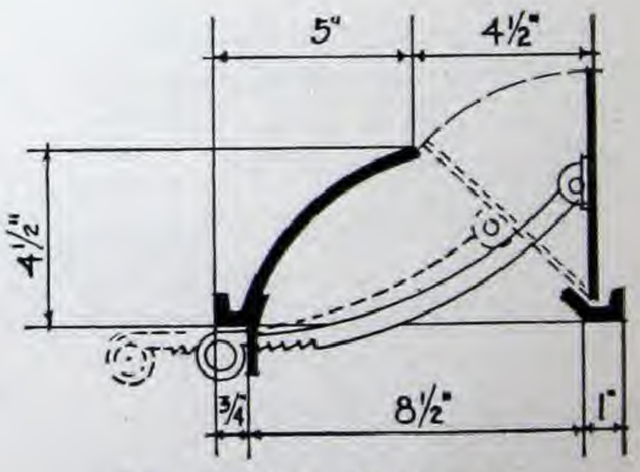
Section "New Covert" Damper Ratchet Operation



Rotary Operation

Available on the "D & R" Damper only. A smooth operating worm and collar mechanism that will not clog up under soot deposits.

Bronze handle and face plate positioned over centre of opening.



Section "D & R" Damper Ratchet Operation

Radiheater Fireplace Unit

Patented in Canada 1948

The Radiheater Fireplace Unit with its **fresh air** principle of operation establishes the highest standard of operating efficiency. This complete metal form is not only a guide to better fireplace construction. It is the fireplace itself – around which you build your masonry and mantel. With this unit the most inexperienced workman can build as well as the "experts", because a Radiheater takes all the guesswork out of fireplace construction.

A Radiheater does this for you –

1st – It eliminates the common mistakes in shape, proportion and design that cause ordinary fireplaces to fail.

2nd – It recovers a large percentage of the heat ordinarily lost up the flue and absorbed in the masonry.

3rd – It prevents infiltration of air around doors and windows by providing an independent supply of air for combustion and circulation, thus eliminating draughts.

Flue Connection

Correct size for each unit.

Hot Air Outlets

With stove pipe connections furnished complete.

Fresh Air Control

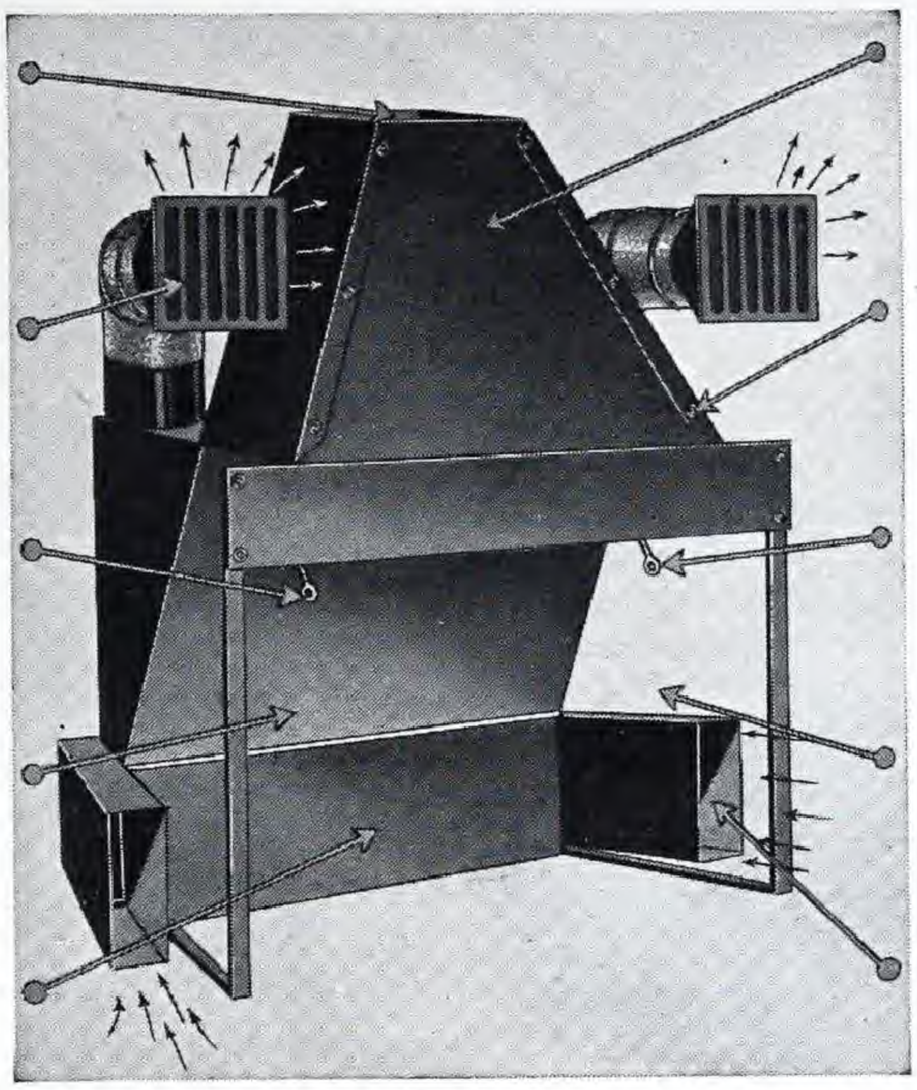
Conveniently regulates inflow of outside air.

One Piece Body

Full $\frac{3}{16}$" plate in front, bottom and wind shelf.

Fresh Air Valve

Shuts off outside air when not in use.



Smoke Chamber

Properly proportioned, with wind shelf and throat damper.

Insulation

Supplied to cover smoke chamber and body of unit.

Throat Damper

Convenient poker operated control.

Brick Jambs

Preserve genuine fireplace appearance.

Floor Intake Ducts

Re-circulate inside air.

Every builder of a fireplace knows that most of the heat escapes up the flue. He also knows the difference between success and failure in a fireplace is a matter of simple dimensions and proportions.

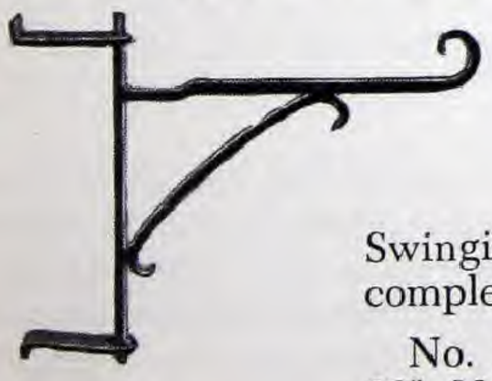
A Radiheater Unit saves much of this heat loss and automatically governs every detail of construction. A Radiheater Fireplace **must** "work".

Radiheaters are made in two types – Model A, the modern efficient Fresh Air type – Model C, for basements and inside chimneys.

Available in the following 8 sizes:
26", 30", 34", 38", 44", 50", 56", 62".

Literature fully describing Radiheaters is available upon request.

Fireplace Crane

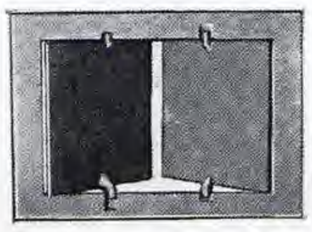


Lends a touch of quaintness to any fireplace. Substantial wrought iron construction for actual use. Swinging arm is removable and complete with anchoring lugs.

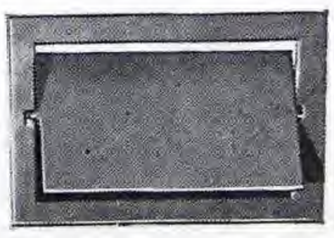
No. 1 for openings from 24" to 32"; No. 2 for openings from 34" to 42" and No. 3 for openings from 44" to 60".

Ash Dumps

A necessity in most fireplaces for dumping ashes into the pit below. Both types are self-closing and plates are so hinged that they cannot fall out.



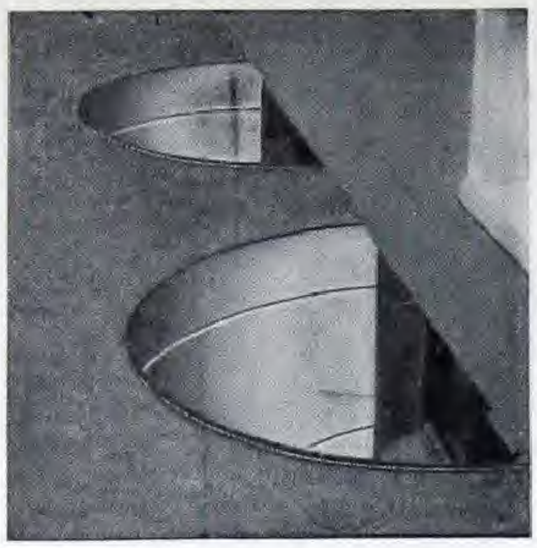
Automatic



Flush

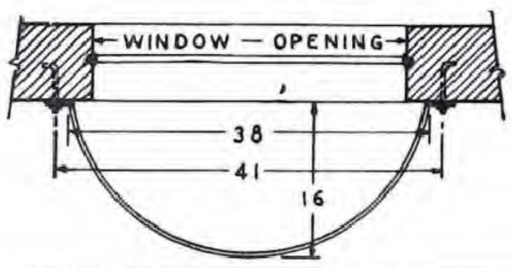
Miscellaneous Products

Steel Area Walls

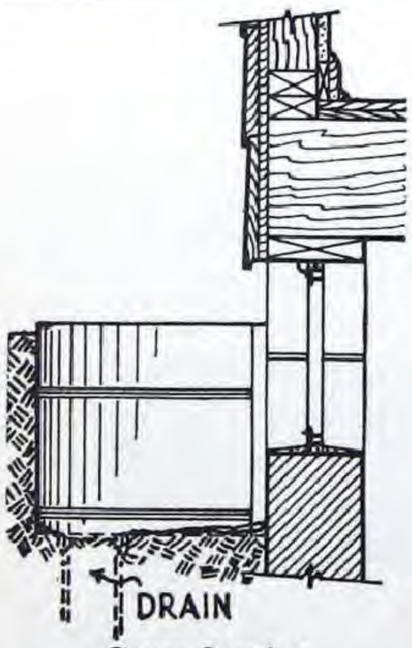


In low-set homes, with basement windows below grade, the D & R Steel Area Walls provide an enclosure that is economical, quick to install, and lasting. They are made of 16-gauge U. S. S. copper alloy steel protected with Tite-Coat galvanized finish. They are arch-shaped, flanged, have ribs for increased strength and project from the wall a full 16 in. for generous light admission.

Installation. Just place the wall in the excavation and backfill with earth (not cinders). Earth pressure holds the wall in place. So little surface is presented to frost that extension below the frost line is not necessary. The Area Wall may be fastened to the foundation by nailing through nail holes or by bolting through convenient slots, both provided in the flanges. Anchor bolts, ⅜ in. in diameter, to be embedded in foundation, are available in sets of four (galvanized) with nuts and washers.



Order by No.	Width	Height	Shipping Weight
0	38″	11½″	13 lbs.
1	38″	17½″	20 lbs.
2	38″	23½″	26 lbs.
4	38″	29″	32 lbs.
5	38″	35″	38 lbs.



Cross Section

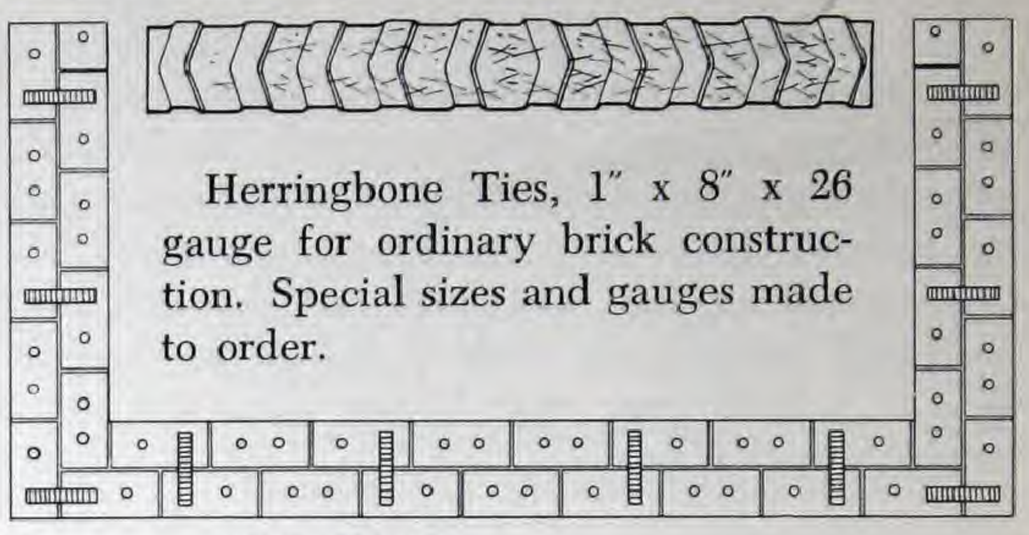
Area Gratings

One standard size fits all five Steel Area Walls.

Made of 1¼″ x ¼″ bars, with cross bars of 1″ x $\frac{3}{16}$″ spaced 2″ apart and welded into one unit. Three supports on the grating hold it flush with the top of area wall.

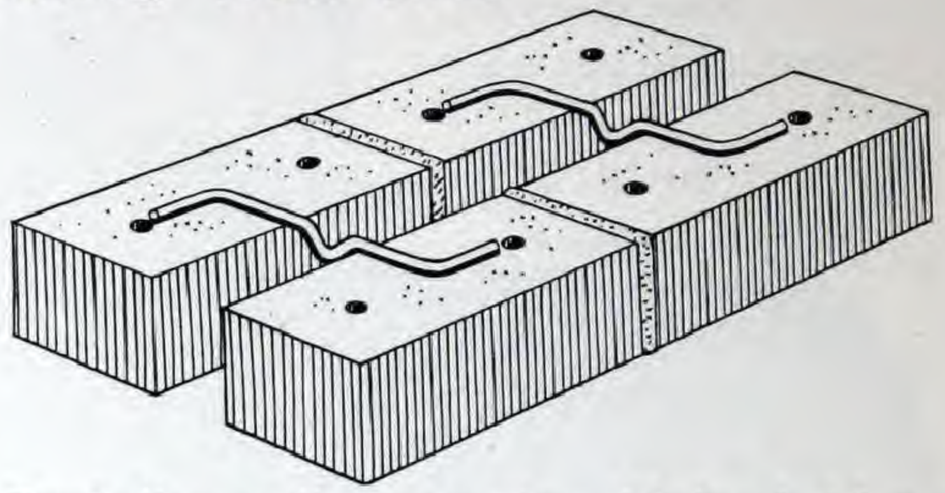
Plain or galvanized. Weight 18 lbs.

Galvanized Brick Ties



Herringbone Ties, 1″ x 8″ x 26 gauge for ordinary brick construction. Special sizes and gauges made to order.

Cavity Wall Ties

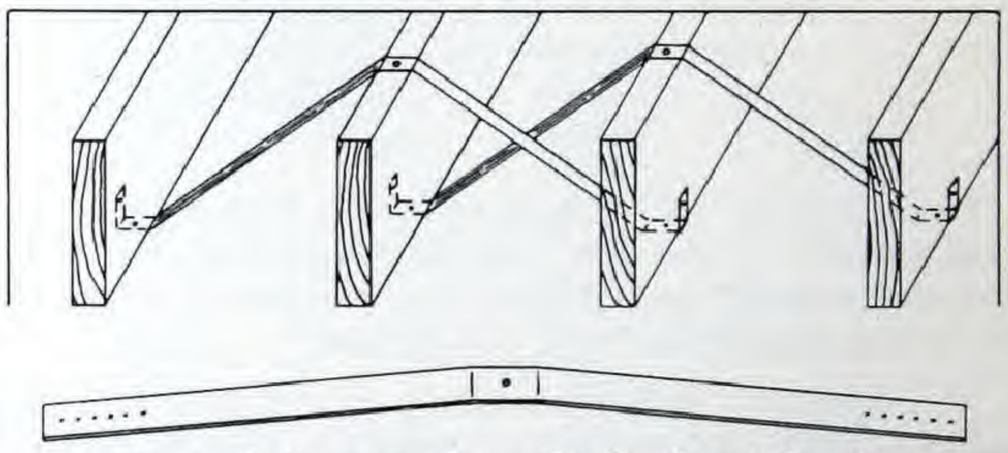


For hollow wall construction. Made of $\frac{3}{16}$″ or ¼″ galvanized steel rod, or plain steel hot galvanized or cadmium plated after forming.

Standard lengths are 6″ and 8″ plus 2″ bend at each end.

Furnished with moisture drip to prevent seepage.

D & R Steel Bridging



A new and improved method of reinforcing your floor joists. Saves time, material and labor in cutting and fitting.

D & R Bridging is made to suit all sizes of joists on either 12″ or 16″ centres. It is centre punched to nail into the top of joist and provided with six nail holes at each end to take care of any irregularity in joist spacing.

Installation. Nail the Bridging to the top of joists, with the ends bent down, and proceed to lay your floors. Now leave the joists to shrink and "set", just as you would with wood bridging, before tightening up and nailing the ends. This will ensure an even tension between joists and a rigid installation.

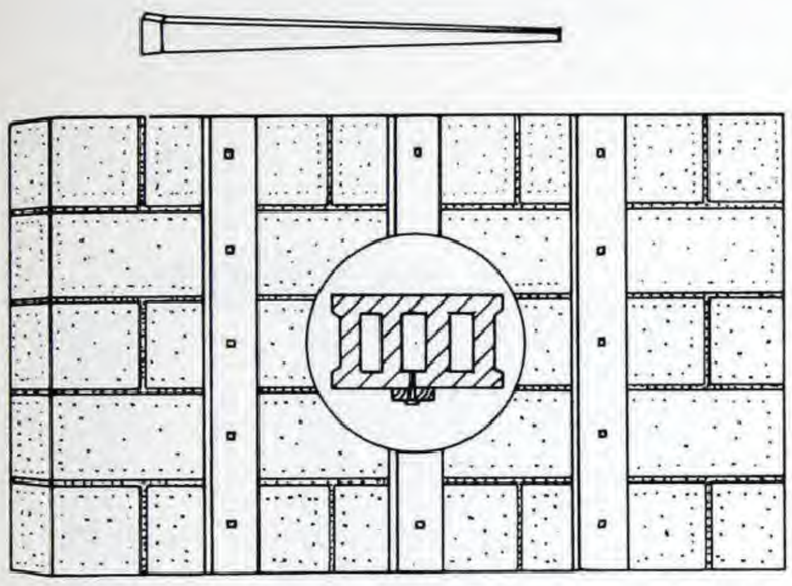
Made of ¾″ x 20 ga. galvanized strip.

Advise size and spacing of joists when ordering.

Miscellaneous Products

Will drive into concrete, brick, tile, blocks, mortar joints, etc. Used by plasterers, general contractors, lathers, carpenters, sign erectors and others for nailing plaster beads, metal lath and furring, strapping, grounds, sleepers, metal advertising signs, etc., to all kinds of masonry surfaces.

Only a fraction of the cost of other methods. No tools required. Carried in stock in ½″, 1″, 1½″, 2″ and 2½″ sizes.



This new hardened cut steel nail is particularly effective in the application of furring strips to building blocks of various types.

The four cutting edges penetrate more easily and have from three to four times the holding power of round wire nails.

Cut steel nails are also used extensively in the laying of hardwood floors, as they never bend and the four sides have 72% greater holding power than round nails.

D & R Ventilators

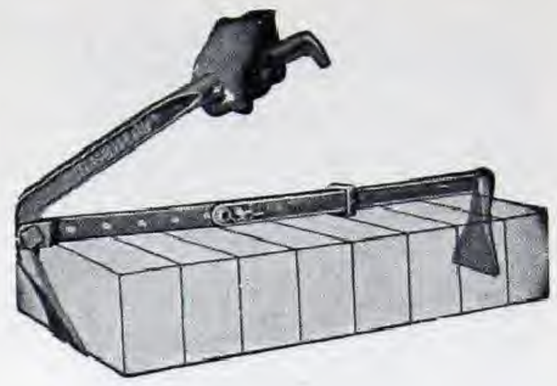
Prevent dry rot by admitting fresh air to enclosed spaces under porches and homes without basements, for fruit and vegetable cellars, attics, drop ceilings, etc.

Made in cast aluminum and cast iron. An outer casting with adjustable inner grid that may be opened or closed. Fitted with or without copper screen between castings to exclude insects.

Sizes — 8″ x 6″.
12″ x 8″.
16″ x 8″.

Brick Clamp

A great convenience in the unloading of cars and trucks, and in the handling of bricks on a job. Will safely carry up to 12 bricks at a time and adjustable from 26″ down to 16″.



Dutch Oven Door

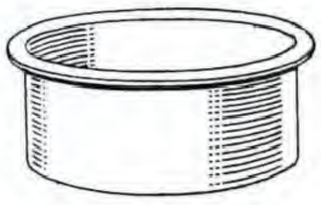
A door of authentic Early American design to build into a real Dutch Oven, or as an ornamental door to fuel storage recess. Also serves as an attractive clean-out door for fireplace.

Substantial, well-fitted cast iron construction.

Size overall 15″ x 18″; wall opening 12½″ x 15½″.

Flue Thimbles

Cast Iron. Provide a substantial inlet for stove and furnace flues. Made to fit standard 6″, 7″, 8″, 9″ and 10″ pipes.



Clean-Out Doors

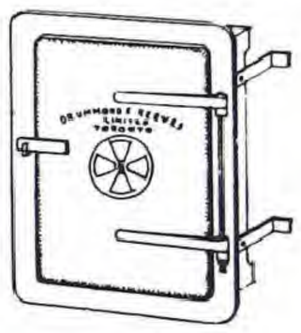
Tight fitting, substantial, hinged cast iron doors and frames for removal of soot from base of stove and furnace flues, and ashes from the fireplace ash pit.

Made in following sizes:

15″ x 12″
12″ x 12″
12″ x 8″
8″ x 8″

Large Sizes

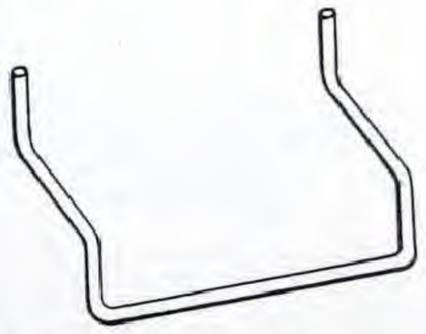
For base of industrial and other large chimney flues, also suitable as a receiving door to storage bins, for industrial rubbish burners, incinerators, etc.



Sizes 18″ x 24″ and 18″ x 18″.

Size 24″ furnished with adjustable vent.

Manhole Steps

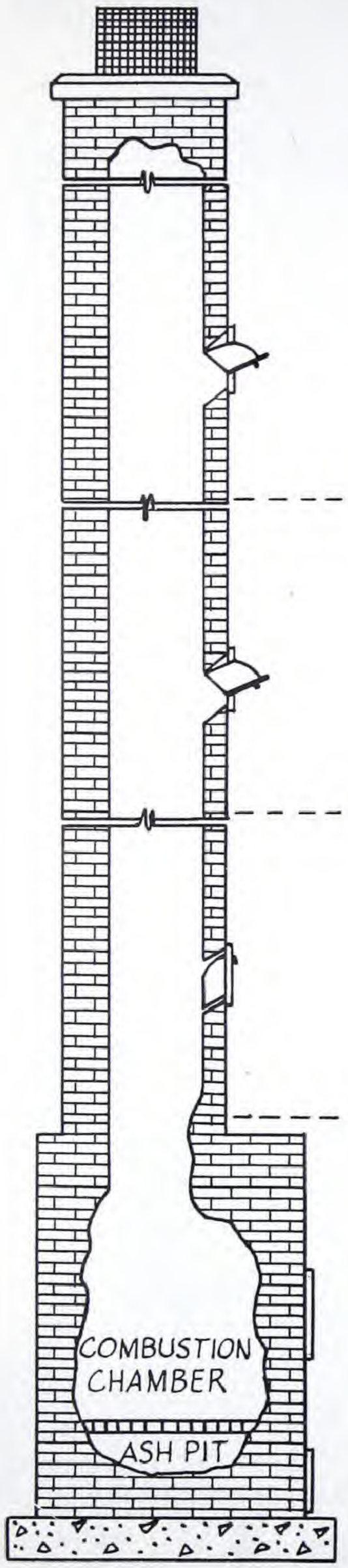


Made of ¾″ round steel, hot-dip galvanized.
Width 12″. Depth 10″.
Length of Hooks 3″.

"D & R" Flue-Fed Incinerators

Incineration is recognized as the one acceptable method of garbage disposal. It eliminates the unsightly and insanitary garbage can, promotes sanitation, reduces fire hazards, saves cost of garbage collection services, adds to the convenience and good-will of occupants and tenants, and saves its cost many times over for the building owner.

Sanitation, safety, convenience and economy – all these are gained when you install a time-proven "D & R" Incinerator.



The "D & R" Incinerator is a complete unit from the ash-pit door to the chimney screen – everything except the masonry. Detailed blue prints are furnished with each unit, showing all dimensions and the complete lay-out, including the roof steel which comes with the unit, and every detail of construction.

Made in the following standard sizes:

Model No. 1 – For residences up to 10 rooms; apartments up to 24 rooms.

Model No. 2 – For large residences; apartments up to 80 rooms.

Model No. 3 – For apartments up to 140 rooms; hospitals up to 60 beds; schools up to 700 students.

Model No. 4 – For apartments up to 200 rooms; hospitals up to 90 beds; schools up to 1,000 students.

Model No. 5 – For apartments up to 300 rooms; hospitals up to 120 beds; schools up to 1,400 students.

SEPARATE LITERATURE AVAILABLE FULLY DESCRIBING "D & R" INCINERATORS, WITH STANDARD LAY-OUTS, SPECIFICATIONS, COMPLETE DETAILS OF CAPACITIES, MEASUREMENTS, MATERIAL QUANTITIES AND OTHER USEFUL INFORMATION.

Hopper Receiving Doors

The Hopper Door assembly consists of a wall frame, a door frame and receiving door, complete with heavy galvanized steel hopper.

Attractively finished in satin aluminum and available in two sizes.

No. 1 – clear opening 8½" x 7½".
No. 2 – clear opening 11" x 10".

D&R For Sanitary Garbage Disposal D&R

Fire Grates

Size of Grates

No. 1 Unit – 1 Grate 16″ x 16″
No. 2 Unit – 2 Grates 12″ x 20″
No. 3 Unit – 2 Grates 12″ x 20″
No. 4 Unit – 2 Grates 12″ x 25″
No. 5 Unit – 3 Grates 12″ x 25″

Fire Doors

Made in 3 Sizes

No. 1 – Clear Opening 17″ x 14″; Frame 20″ x 17″
No. 2 – Clear Opening 22″ x 17″; Frame 25″ x 20″
No. 3 – Clear Opening 29″ x 22″; Frame 33″ x 26″

Size 29″ x 22″ Clear Opening
Size 33″ x 26″ O/S of Frame

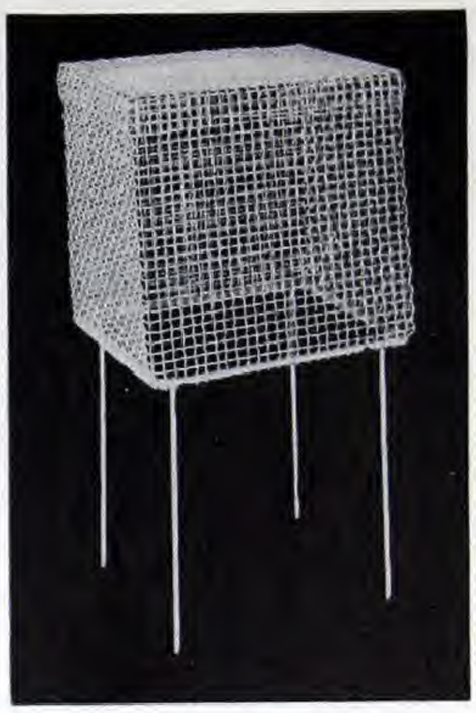
No. 3 Double Fire Door

Chimney Screens

Made of 12 gauge steel wire in ½″ mesh, formed around a ⅜″ reinforcing frame.

Hot galvanized after fabrication.

Screens are included in incinerator price and are available in all standard flue sizes.



Ash-Pit Door

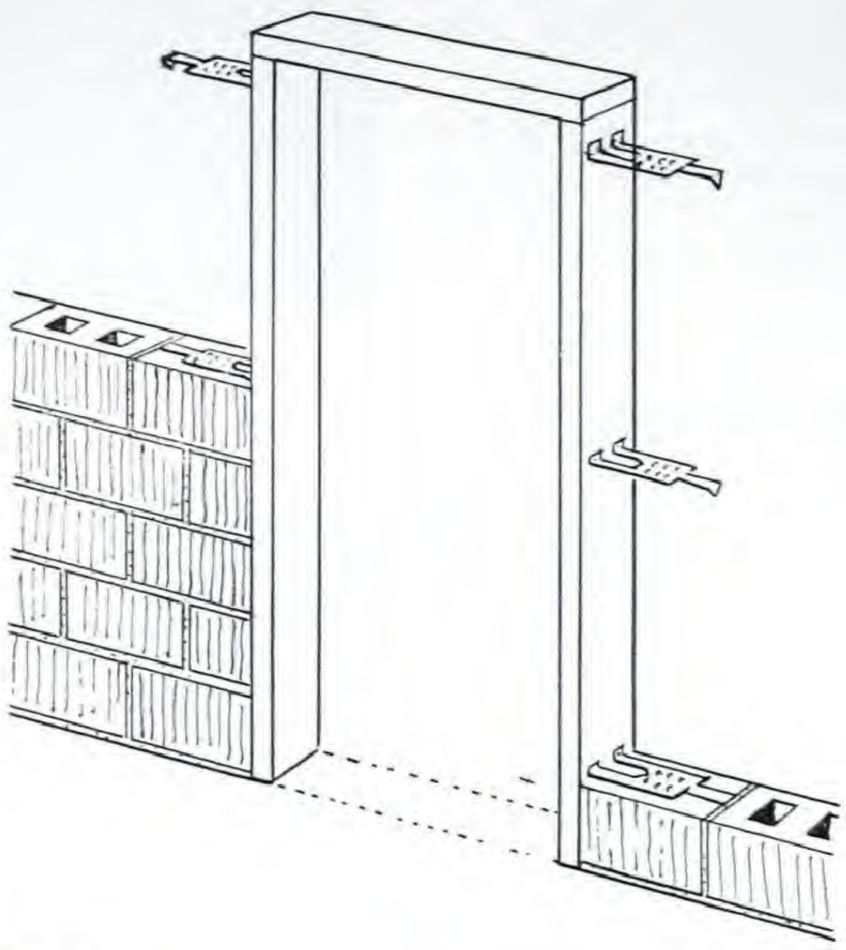
Since the ash-pit door is provided primarily for the removal of ashes from below the grates, one standard size serves all models.

This door is furnished complete with steel lintels, as illustrated below. The door opening size is 16″ x 12″ and the outside of frame measures 18½″ x 14½″.

Steel Lintels

Each Ash-Pit Door and Fire Door is furnished complete with steel angle lintels to carry masonry over the door opening. These lintels are shipped bolted to the door frame, so there can be no error in assembly.

Security Buck Anchors



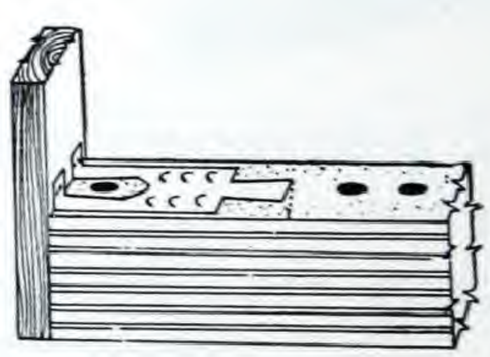
This improved Buck Anchor has been found by a great many Contractors and Architects to really solve the problem of anchoring wood door bucks in brick, tile, gypsum and other types of masonry walls. It is lower in cost and provides greater security than strap anchors, plugs, bolts, lag screws, etc.

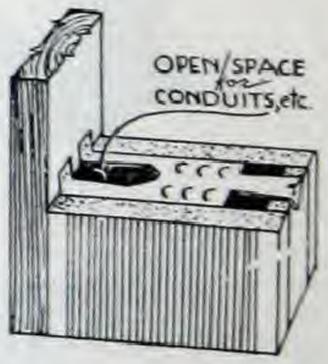
The "D & R" Buck Anchor is 3¾" in width and takes a double hold on the buck which prevents rocking, with resultant cracking of plaster in future years. The design of the anchor and the projecting lugs provide the most secure anchorage in the mortar joint, without breaking the bond between courses. The tongue at the end engages a 12" tile or may be driven into a gypsum block. The open throat provides space for installation of conduit or other pipes.

Made of 18 gauge galvanized or plain steel, 12¼" in length, 3¾" in width, weight approximately 500 lb. per 1,000. Used with all sizes of bucks 4" or wider.

Application

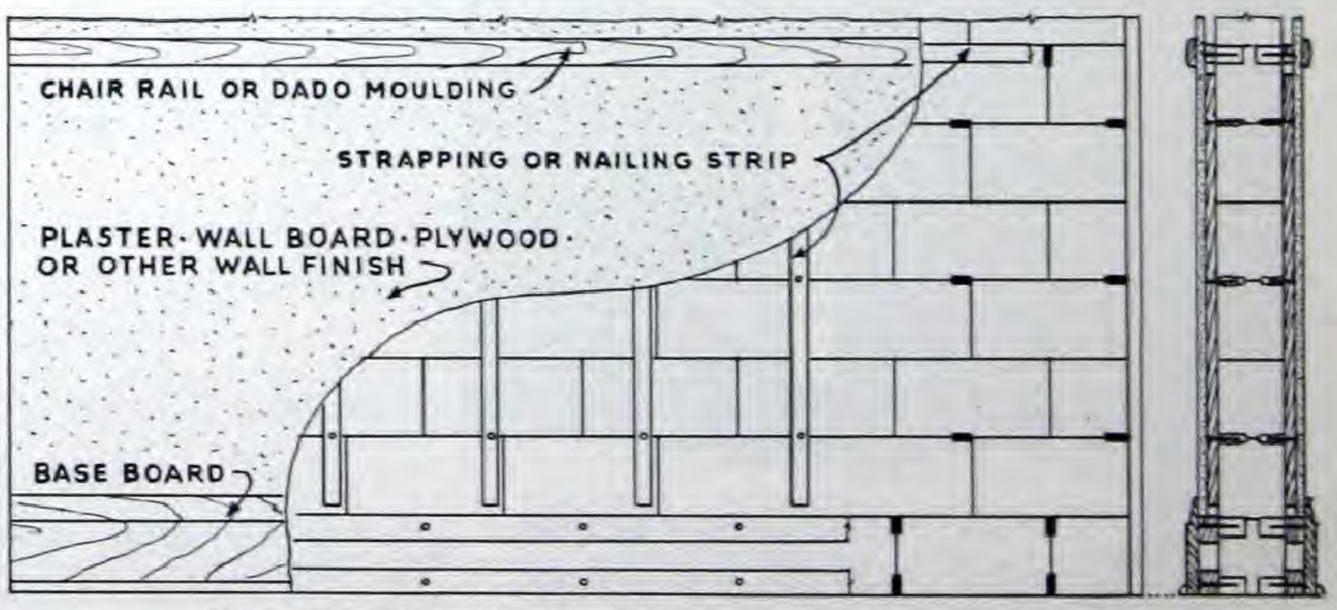
Buck Anchors should be spaced not less than three to each jamb in openings up to 7′ 0″ in height, and one more for each additional 2′ 0″ or fraction. They may be spaced and attached to the buck before laying up the wall, or placed in position as the wall is laid up. Set in full bed of mortar and attach to bucks by means of drive screws, or nails clinched on the face of buck.





Galvanized Wall Plugs

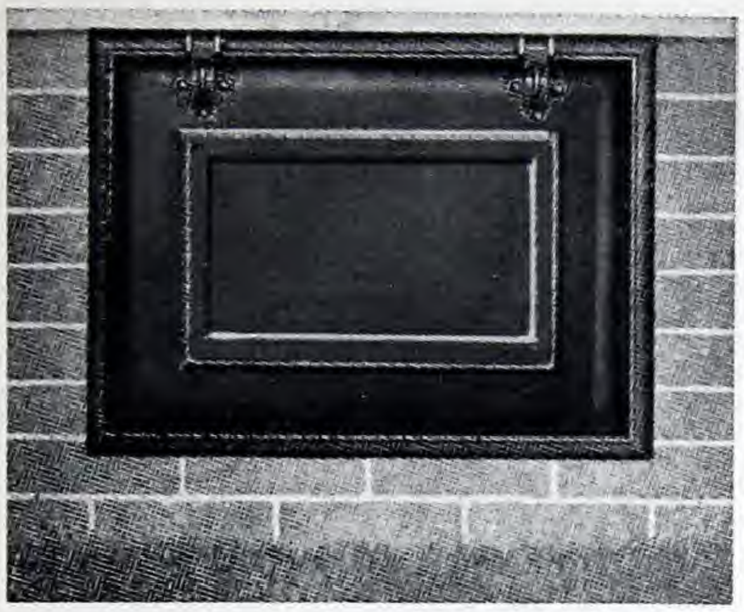
These convenient "plugs" or nailing inserts provide a solid and permanent anchorage for furring, strapping, grounds, etc., attached to masonry walls. No wood plugs to dry out and loosen, and the deep corrugations grip the nail firmly.



Size 3" x 2¼". Made of 26 gauge galvanized steel.

Coal Chutes, Rings, Etc.

Nothing is more unsightly around a home than a broken and battered basement window that has been used for coal deliveries. This can be avoided and the basement walls, lawns and flower beds protected by the installation of a "D & R" unbreakable, all-metal basement coal chute. Made of copper-bearing, rust-resisting steel.

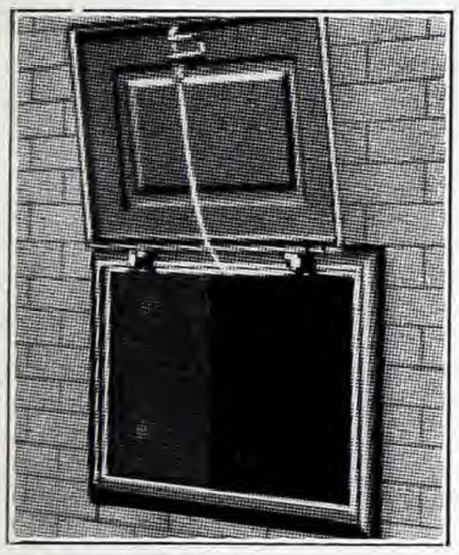


Available in following sizes and styles:

D-19 and M-550
Wall Opening 24" x 17"
Depth of Body – 8"

D-612
Wall Opening 33" x 22"
Depth of Body – 12"

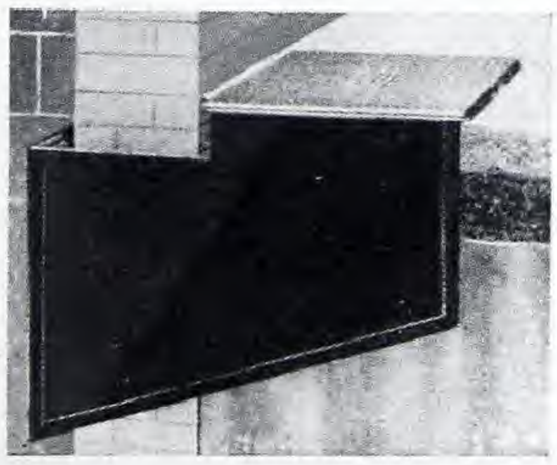
All are equipped with automatic gravity lock and chain – released only from inside.



Door is self-locking when in open position. Lift up to close. Note how it protects face of wall.

Open Position

Grade Line Chute. For buildings with little or no foundation above grade; for stores, banks, etc.



Body is of 12 gauge rust-resisting, welded steel construction. Has automatic inside lock and non-slip checkered steel door that supports sidewalk traffic.

Door Opening 24" x 20"
Wall Opening 24" x 24"

Coal Rings and Covers

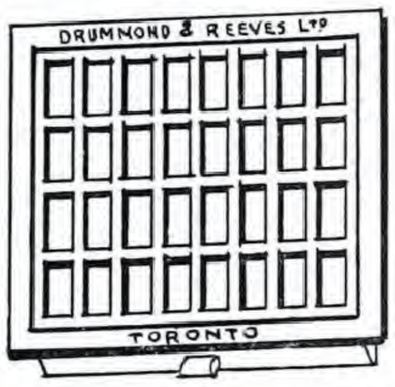
Substantial cast iron Ring with well fitted Cover in neat design. Made in following sizes:

Cover diameter	Opening	Ring diameter
19"	18"	21"
22½"	21"	25"
25½"	24"	28"

Sizes 21" and 24" have Drop Handles.
All sizes available with Extra Heavy Cover.

Garage Floor Gratings

Heavy cast-iron frame and removable cover. For drainage in private and public garages, wash racks and elsewhere.



Made in two sizes:

16x16" outside, 12x12" cover
24x24" outside, 20x20" cover

"D & R" Salamander

There is genuine economy in purchasing a salamander of heavy construction that will serve for several seasons, instead of one that will require replacement within a year or two.

The "D & R" Coke Salamander has a body of 15 gauge steel, with a grate ¾" thick and extra heavy legs. Gives excellent protection against frost and when equipped with a cast iron top and lid it serves as an excellent stove for small job offices and temporary heating. Ash pans available.

A "D & R" Salamander, equipped with ash pan, top and short chimney, makes an ideal low-cost incinerator and rubbish burner for gardens, summer cottages, etc.

Measurements

Height of body – 24"
Diameter of body – 15"
Overall height – 36"
Stovepipe collar – 6"

Accessory Specifications

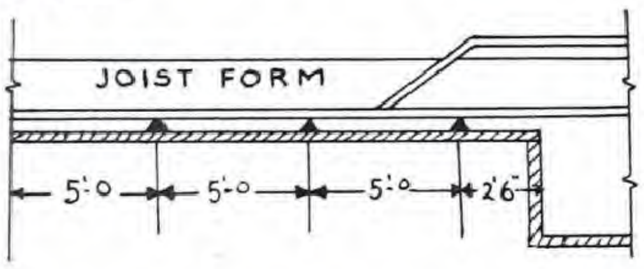
All reinforcing steel shall be securely and accurately spaced and supported in the forms by means of approved wire chairs, spacers and support bars, adequate in strength to ensure against displacement during the course of construction.

One-Way Slab Construction

For spacing up to 6′ 0″ between beams — one row of slab support **and** one row of Hy-Chairs with ⅝″ carrying bar on not over 4′ centres, **or** one row of Continuous Hy-Chair to each bay.

For spacing over 6′ 0″, two rows of Hy-Chairs and slab supports not over 5′ 0″ centres.

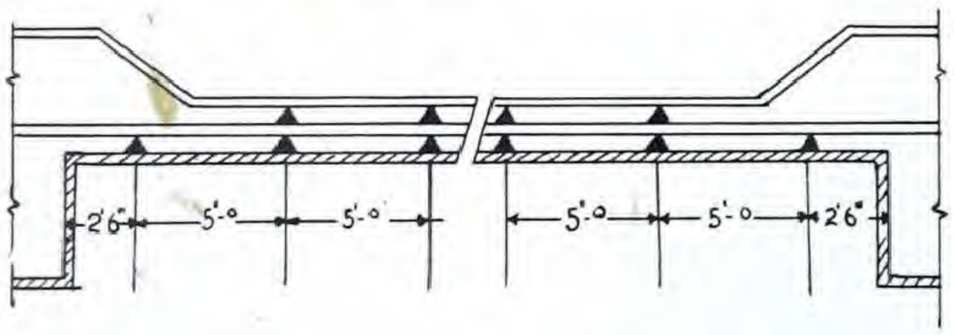
Joist and Beam



Minimum of two Joist Spacers under every bar and additional spacers at not over 5′ 0″ centres.

To support bent-up ends of joist bars, use Band Iron Chairs placed at each side of joist form, with ⅜″ carrying bar.

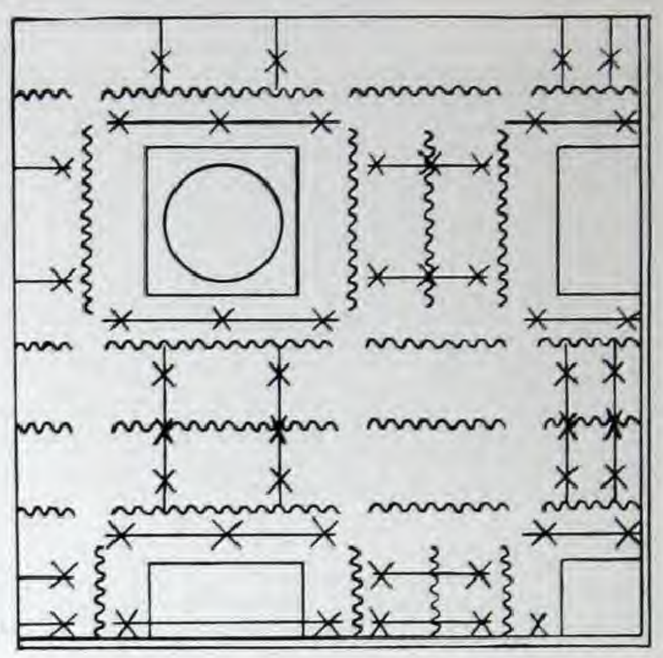
Heavy Beam and Girder



Lower steel supported on No. 50 Lower Beam Bolster and upper layers on No. 60 Upper Beam Bolster. End spacing not over 2′ 6″ and intermediate spacing not over 5′ 0″.

The lay-out of such spacers and chairs may be seen in the catalog of Drummond and Reeves Limited, Toronto, and the size of wire and quantities shall be not less than the following:

Flat Slab



For Spans up to 18′ use 3 rows of Slab Bolster in both column and middle bands, and 4 rows if over 18′ span.

Hy-Chairs and Support Bars (or Continuous Hy-Chair)

	Column Head Reinforcement		Reinforcement Middle Strip	
	Indiv.	Contin.	Indiv.	Contin.
Interior Columns	6	2 Rows		
Exterior "	4	2 "		
Corner "	3	1 "		
Interior Panels			12	4 Rows
Exterior "			15	5 "
Corner "			18	6 "

SYMBOLS in accompanying lay-outs

Individual Hy-Chairs with support bar or Continuous Hy-Chairs.

Continuous Slab Bolster or Spacer.

Hy-Chair with support bar or Continuous Hy-Chair.

Continuous Slab Support, Joist Spacer or Beam Chair.

THE CORRECT USE OF REINFORCING ACCESSORIES

The advantages in the use of properly designed reinforcing Bar Chairs, Spacers and Ties are recognized alike by Architects, Engineers and Contractors. After carefully detailing the location and spacing of every reinforcing bar, it is false economy to permit the use of brick bats, concrete blocks, etc., as a means of support. Assurance that steel will remain at the designated height and spacing can only be attained by the use of reliable Chairs, Spacers and Ties.

"D & R" Reinforcing Accessories have been used on thousands of jobs and are designed to meet actual job conditions. Their use does not increase the cost of a building, but expedites the placing of steel and facilitates inspection.